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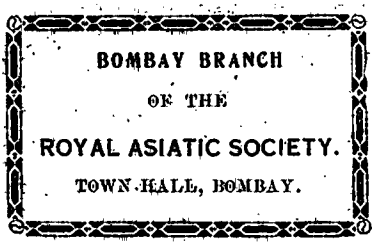

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No. XVII.—New Series.

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ON

SHIKARPOOR; THE SYUDS OF ROREE AND BUKKUR; THE KHYRPOOR STATE;

THE STATES AND TRIBES ON THE FRONTIER OF UPPER SIND; THE BAY, HARBOUR, TOWN, AND TRADE OF KURACHEE; THE PROVINCE OF LUS; THE CITY OF TATTA, AND ITS ENVIRONS.

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MEMORANDUM RELATIVE TO THE TRADE IN INDIGO, IN COUNTRIES BORDERING ON THE INDUS.

Part II

—— MEMOIRS ON THE RIVER INDUS.

REMARKS ON THE PLANTS, AND ARTICLES OF CULTIVATION IN SIND; NOTES RELATIVE TO THE POPULATION, THE CHIEFS, &c. IN THAT PROVINCE; THE PEARL FISHERY, SEA FISHERY, AND SALT BEDS OF SIND.

REPORT ON THE PURGUNA OF CHANDOOKAH, IN UPPER SIND.

ROUTES FROM KURACHEE, &c. TO BHOOJ, TATTA, JERRUK, SUKKUR, &c.

EDITED BY R. HUGHES THOMAS, ASSISTANT SECRETARY, POLITICAL DEPARTMENT.

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PART II.

DETAILED LIST OF CONTENTS.

RIVER INDUS.

PAGE

Memoir on the River Indus; by the late J. F. Heddle, Assistant Surgeon, Bombay Army 401
Introductory remarks 403
Enters the main stream by the Hujamree branch of the Indus .. .. ib.
Observations confined to the main stream between the latitude of Hyderabad and the point where it gives off the Hujamree, and to the latter branch from its efflux at Seanee until it reaches the sea .. .. ib.
Notice of the Fullailee branch .. .. ib.
The Pinyaree branch 404
Opinion relative to the mouths of the Delta 405
Offsets after passing Baree Gorah .. .. ib.
Description of the principal mouths of the Indus 406
Situation of the mouth of the Hujamree.. 408
Description of the main stream 409
Appearance and qualities of the water of the Indus 411
Description of the banks.. .. .. ib.
Notice of the annual elevation of the Indus, and comparison between it and the Ganges, Nile, &c. 413
Causes of the periodical swell .. .. ib.
The character in the rise of the three great rivers, the Ganges, the Indus, and the Nile, contrasted 415
Statements gathered from the Natives regarding the rise of the Indus .. ib.
Observations on the Delta 416
Remarks on the filling up of the channels and branches of the Indus.. .. 417
Remarks on the sediment suspended by the water, and the soil of the banks of the Indus 418
Remarks on the range of hills between Hilaya and Raja-jo-Gote 419
Geological structure of the hills 420
Varieties of grain produced 421
Obstacles offered to the navigation of the Indus .. .. ib.
Observations on the rulers and people of Sind 425
The main trunk of the Indus, and of the collateral branch, the Hujamree, divided into sections by the Sindians 427
Table showing the sections 428
Description of the section of the Hujamree 429
Population of the lower part of the Hujamree section 432
Enumeration of the chief places met with along the banks of the river .. ib.
Moonara .. .. ib.
Kettoo 433
Humbus and Joah .. .. ib.

PAGE

Mamooda-jo-Gote 434
Baree Gorah or Vikkur .. .. ib.
The Bunna and Seanee sections 435
The Poput and Moograh sections 438
Observations on the phenomena influencing the navigable state of the river .. 440
The falling in of the banks, &c. 441
The Sahoo section 443
Table of sectional soundings 445
The principal villages .. .. ib.
Jerruk .. .. ib.
Giddoo Mull-jo-Tundo, and Kotree.. 446
Establishments for the manufacture of spirits 447
Inhabitants of this section .. .. ib.
Ferries 448
Purgunas of the section .. .. ib.
Description of the town, citadel, and inhabitants of Hyderabad 449

APPENDIX 453
Statement of the villages on the right bank of the river Indus, between the latitude of Hyderabad and efflux of the Hujamree.. .. .. .. ib.
Ditto ditto on the right bank of the Hujamree branch .. .. .. ib.
Ditto ditto on the left bank of the Indus, between Hyderabad and the efflux of the Hujamree 454
Ditto ditto on the left bank of the Hujamree branch .. .. .. ib.
Statement of the artizans, traders, &c. inhabiting the city of Hyderabad .. 455
Return showing the number of vessels which annually frequent Baree Gorah on the Hujamree; and the value of the imports and exports 456
Statement of the grains grown in Sind 457

DELTA OF THE INDUS.

Memoir on the Delta of the Indus; by the late Lieutenant T. G. Carless, of the Indian Navy 459
The branches of the Indus 461
Its mouths 462
Sea coast of the Delta .. .. ib.
The tides 464
Navigation .. .. ib.
The fisheries 465
Large boats of the Indus.. 466
Course of the Hujamree or Seeahn river .. .. ib.
Creeks of the Hujamree 467
The land about the mouth of the Hujamree 468
Bunder Vikkur, the second seaport of Sind 469
The boats of Bunder Vikkur .. .. ib.
Its trade 470
Exports and imports .. .. ib.

PAGE
The old Gorah, and other deserted streams of the Hujamree 471
Alterations in the channel of the Hujamree .. .. ib.
The Kedywaree branch 473
Its mouth and course .. .. ib.
The Adhearee branch 474
Course of the Indus from Hyderabad 475
The Kookewaree mouth .. .. ib.
Channels of the Kookewaree 477
Breadth of the Indus near its mouth .. .. ib.
Ditto ditto along its course 478
Current of the Indus .. .. ib.
The country about the mouth of the main river.. 479
The Kookewaree Purguna 480
The old Gorah mouth of the river .. .. ib.
Appearance of the country about the Kedywaree .. .. ib.
Appearance about the destroyed bed of the Mootnee 481
Situation of the wrecked ship *Futteh Jung* .. .. ib.
Destroyed branches, remains of 482
The Teeteeah branch .. .. ib.
State of the river and banks between Teeteeah and Tatta 483
State of the river above Tatta .. .. ib.
Remarks relative to the local divisions of the Indus 484
Table of the different sections of the river below Hyderabad 485
Description of the Poput, Moograh, and Setta sections.. .. .. .. ib.
Description of the Wanyanee section 486
Remarks on the navigation of the Indus below Hyderabad 487
Boats of the Indus 488
Rate of charges for the hire of Doondees 489
The Jumptees, or state barges of the Ameers.. .. .. ib.
Periodical rise of the Indus .. .. ib.
The water of the Indus ; its analysis, &c. 490
Notice of the changes in the branches of the Delta .. .. ib.
Notice of the occasional high inundations of the river 491
General remarks on the Delta, and its inhabitants 492
Soil and climate 493
Population 494
Condition of the lower class of peasantry in Sind 495
Animals of Sind 496
Waterfowl and fish of the Delta .. .. ib.
The Koree or eastern branch of the Indus .. .. ib.
The land about and above its mouth, on the Sind side.. 498
Loll Chetta, and Kotaseer, on the Kutch side 499
The fortified town of Lukput .. .. ib.
Effects of the earthquake of 1819 along the Koree 500

THE RIVER INDUS.

PAGE

Report upon Portions of the River Indus; surveyed, in the years 1836 and 1837, by the late Lieutenant T. G. Carless, of the Indian Navy; accompanied by a Journal 501
Kedywaree mouth and river 503
Kookewaree mouth 507
The main river from its mouth to the Teeteeah 509

Journal, kept by Lieutenant Carless, while employed on the survey of the river Indus, 1836-37.. 513

Report on the River Indus, accompanied by a Chart; by Lieutenant J. Wood, late of the Indian Navy; completed in October 1838 541
Abstract of contents 542
Construction of the chart of the river Indus 543
General view of the river.. 544
Navigable character of the river.. 547
Of the soundings in Indian rivers 548
Of the mode of navigating the river Indus 549
Of the winds and weather in the Valley of the Indus 553
Of the boats upon the river Indus 555
Form, and method of construction .. .. ib.
Rig of the boats 557
Management of the boats 558
Boat-building materials 559
Of steam-vessels for the Indus 561
Remarks on the steamboats of the Ganges, by Captain Johnstone, R. N. .. 562
Of fuel for steamboats 564
Report, dated 30th October 1837, on the relative value of wood and coal, by Captain Johnstone, R. N. 566
Of the inundation 567
Fords of the Indus 569
Of a site for a fair 573
The Indus and Punjaub rivers 577
Concluding remarks 578

APPENDIX 580
Table of comparison of chronometers .. .. ib.
Tables showing the longitude of certain stations 581
Tables comparing the geographical position of certain places 582
Sectional and cross-river soundings 583
Irregularities in the bed of the Indus.. 586
Tonnage upon the Indus 587
Price of boats at Pind Dadun Khan .. .. ib.
Hire of boats 588

FLORA OF SIND.

PAGE

Practical Remarks on the Plants of Sind, and the Uses of certain Wild Plants in Medicine, &c.; by the late Assistant Surgeon J. E. Stocks, Bombay Medical Establishment 589
Introduction; general remarks 591
Natural families of plants, forming a peculiar feature in the vegetation, and which have a proportionably greater number of species than is the case in Tropical India 592
Lists of plants, pointing out the affinities of the Sind Flora .. .. .. ib.
Arabia—Plants actually found in Arabia .. .. ib.
Plants Arabian in type 593
Egypt and Nubia .. .. ib.
Afghanistan .. .. ib.
Punjaub .. .. ib.
India 594
Uses of certain of the Wild Plants of Sind in medicine, the arts, and domestic economy; index 595
I.—Timber trees 596
II.—Cordage, mats, and baskets 597
III.—Dye plants 598
IV.—Gums and gum resins .. .. ib.
V.—Tanning 599
VI.—Edible plants .. .. ib.
Green parts .. .. ib.
Roots 600
Wild fruits .. .. ib.
Seeds and seed-like fruits 601
Miscellaneous .. .. ib.
VII.—Drugs 602
Purgatives .. .. ib.
Emetics .. .. ib.
Diuretics .. .. ib.
Tonics and febrifuges .. .. ib.
Demulcents 603
Cooling medicines .. .. ib.
Heating medicines 604
Carminatives .. .. ib.
Anthelmintics 605
Astringents .. .. ib.
Miscellaneous .. .. ib.
VIII.—Plants yielding soda 606
IX.—Camel fodder plants .. .. ib.
X.—Plants used in distillation 608
Brief Notes relative to Articles of Cultivation suitable to Sind, to which attention might be directed with advantage 609
List of the articles 610

DIVISION OF TIME, ARTICLES OF CULTIVATION, AND MODES OF INTOXICATION, IN SIND.

PAGE

Brief Notes relative to the Division of Time, and Articles of Cultivation in Sind; to which are appended Remarks on the Modes of Intoxication in that Province; by Lieutenant R. F. Burton, and Assistant Surgeon J. E. Stocks .. 613

DIVISION OF TIME:

The Moslem and Hindoo years 615
The six ancient Hindoo seasons .. .. ib.
The three modern Indian seasons .. .. ib.
The two Sindee seasons .. .. ib.
The names of the months 616
The days of the week 617

CULTIVATION:

Crops in Sind .. .. ib.
The vernal or Rubia .. .. ib.
The Khareef or autumnal .. .. ib.
List of articles of cultivation in Sind 619
I.—Grains 620
II.—Pulse 621
III.—Oil seeds 622
IV.—Vegetables and greens 623
V.—Gourds 625
VI.—Dye plants 626
VII.—Clothing and cordage plants 627
VIII.—Tobacco and sugar plants 628
IX.—Intoxicating plants 629
X.—Medicine.. 630
XI.—Condiments .. .. ib.
XII.—Fruits 631

INTOXICATION:

Remarks on the modes of intoxication in Sind 635

POPULATION, CUSTOMS, LANGUAGE, AND LITERATURE OF SIND.

Notes relative to the Population of Sind; the Customs, Language, Literature, &c. of the People, &c.; by Lieutenant R. F. Burton, 18th Regt. Bombay N. I.; submitted to Government in December 1837.. 637
Division of the Musulman portion of Sind into two classes 639
I.—The Sindee proper .. .. ib.
II.—The naturalized portion .. .. ib.
Remarks on the Sindee .. .. ib.
Alphabetical list of the large clans or families of Sindees 640
Sindee dialect and literature 643

PAGE

Remarks on the classes naturalized in Sind 644
The Syuds, Afghans, and Beloochees .. .. ib.
Alphabetical list of the chief clans of Hill-people settled in the plains .. 646
The Slaves .. .. ib.
Memons and Khwajas 647
The Hindoo portion of the inhabitants 648
The Bramins .. .. ib.
The Kshatriya 649
The Waishya or Lohano caste 650
The Gooroos .. .. ib.
Classes of Lohano 651
The Amils .. .. ib.
The Soucars 653
The Shudra division, or servile caste 654
The Sikh inhabitants .. .. ib.
Religious mendicants 655
The Hindoo females, character of 656
Notice of ceremonies performed previous to, and after the death of, the Hindoos .. .. ib.

DIVISION OF SIND.

Extracts from Rough Notes by Mr. H. B. E. Frere, Commissioner in Sind, regarding the size of the three Zillas into which the British districts of that Province are divided, &c. &c.; November 1853 659
The Province divided into three districts, Shikarpoor, Hyderabad, and Kurachee 661
The numbers of square miles in these districts .. .. ib.
The area of the Province of Sind, compared with the older Zillas of the Bombay Presidency .. .. ib.
Notice of the relative proportions of the Bombay and Sind Zillas 662
Description of the population and police .. .. ib.
System of criminal justice 663
Conclusion 664

CHIEFS, &c. OF SIND.

Lists of, and Brief Information in regard to, Chiefs and Persons of Importance in the three Collectorates of Sind; by Major P. Goldney, and Captains H. W. Preedy and A. B. Rathborne, the Magistrates of those Collectorates; December 1847 665
Chiefs and persons of importance in the Kurachee Collectorate 667
In Kurachee, and the Purguna of Ghorabaree .. .. ib.
In the Syatree and Sakra Purgunas 668
In Garka 669

PAGE

Beronath of Tatta 670
Seree Purguna 671
Sonda, Jerruk, and Kotree .. .. ib.
Chiefs in Bada and Ryla, in Mahajanda and Lukkee.. 673
In Sehwan, Janghar, and Boobuk 674
In Samtanee, Dadoo, and Puttee 675
In Kurmpoor, Whichola, Khodabad, and Murkapoor 676
In Kacha.. 677
List of all chiefs and persons of importance residing within the limits of the Hyderabad Collectorate 678
Chiefs and persons of importance residing in the Shikarpoor Collectorate; with a brief outline of the history of that tract of country prior to the conquest in 1843.. 688
List of influential persons 690
Miscellaneous information connected with the districts in the Shikarpoor Collectorate, collected by Major Goldney, and intended to form an Appendix to the preceding paper 694

PEARL BANKS, &c.

Memoranda on the Pearl Banks and Pearl Fishery, the Sea Fishery, and the Salt Beds of Sind; by the late Mr. John Macleod, Collector of Customs at Kurachee 699
Pearl banks and pearl fishery of Sind 701
Sea fishery 703
Number of boats employed 705
Exports of sharkfins, fishmaws, and salt fish.. .. .. ib.
Salt beds of Sind .. .. ib.

CHANDOOKAH.

Report on the Purguna of Chandookah, in Upper Sind; by Lieutenant Hugh James, Deputy Collector, Shikarpoor; submitted to Government in December 1847 709
Situation and boundaries of the Purguna 711
Division of the district after the battle with Shah Soojah 712
Description of the first and second portions of the division 713
Description of the third division.. 714
The Ghar and Narah rivers .. .. ib.
Description of the branch canals.. 715
Division of the subjects comprised in the Report 717
I.—Natural productions—
Forest trees 718
Fruit trees 719

PAGE

Grain 720
Cotton and vegetables .. .. ib.
Animals and birds .. .. ib.
Minerals .. .. ib.
Towns and villages .. .. ib.
Buildings 722

II.—The population, and the habits and character of the inhabitants .. 723

III.—The system of land tenures, and the relation of the agricultural classes to each other, and to Government 727

IV.—The revenues of Chandookah under the ex-Ameers, and under the British Government 729
Land revenue .. .. ib.
River customs 732
Town duties, &c. 733
Liquor and drugs .. .. ib.
Fisheries and ferries .. .. ib.
Gardens .. .. ib.

V.—Agriculture and manufactures of Chandookah 735

VI.—Civil and criminal jurisprudence 741
Under the ex-Ameers .. .. ib.
Under the British Government 742

General Observations 747

Appendix A.—Table showing the length, breadth, and depth of canals in the Chandookah Purguna 749

Appendix B.—Statement of the number and depth of wells, and the number of minor canals, in the Chandookah Purguna 750

Appendix C.—Tabular statement of fees levied by the ex-Ameers in the Chandookah Purguna, on all crops 751

Appendix D.—Tabular statement showing the rates of duty levied on foreign merchandize 754

Appendix E.—Statement of land cultivated, and rent realized therefrom, in the Chandookah Purguna, in middle crop, 1844 755

Appendix F.—Statement of cultivation, and the land revenue realized therefrom, in the Chandookah Purguna, for the autumn crop, 1844 756

Appendix G.—Statement of cultivation, and the land revenue realized therefrom, in the Chandookah Purguna, for the spring crop, 1845 758

Appendix H.—Comparative statement of cultivation in Chandookah, for the seasons of 1844, 1845, 1846, and 1847 760

Appendix I.—Statement of cash receipts in the Chandookah Purguna, during the year 1845 761

Appendix J.—Statement of actual grain receipts in the Chandookah Purguna, during the year 1845 764

PAGE

APPENDIX K.—Statement of actual disbursements in the Chandookah Purguna, during the year 1845 765

APPENDIX L.—Statement of seed sown, average produce, &c.. 766

APPENDIX M.—Comparative statement of the cultivation of the principal grains in the Chandookah Purguna, taken from the returns of the spring, middle, and autumn crops, 1845 and 1846 767

APPENDIX N.—Table showing the estimated relative value of certain crops to the cultivator 768

APPENDIX O.—Abstract statement of crime in the Chandookah Purguna, in 1845 and 1846.. 769

APPENDIX P.—Return of civil suits decided by the Collector of Larkhana, during the years 1845 and 1846 772

APPENDIX Q.—Return exhibiting the number of deaths from cholera, in the Purguna of Chandookah, during the year 1846 773

APPENDIX R.—Table exhibiting the number of villages, shops, &c. in the Chandookah Purguna, in the year 1846 774

ROUTES.

Routes from Kurachee to various towns and places 775 (1)

Route No. I., from Deesa to Hyderabad .. .. (3)

Route No. II., from Deesa to Hyderabad, *viâ* Veerawow and Islamkote .. (7)

Route No. III., from Deesa to Hyderabad, by Parkur, the southern border of the Thull, and Wunga Bazar .. .. (9)

Route No. IV., from Deesa to Sukkur, *viâ* Jeysulmeer .. .. .. (11)

Route No. V., from Deesa to Sukkur, *viâ* Veerawow and Omerkote .. (14)

Route No. VI., from Hyderabad to Baminakote, on the Hujamree, by Jerruk and Tatta .. .. (18)

Route No. VII., from Hyderabad to Jodhpoor, by Omerkote and Balmeer .. (21)

Route No. VIII., from Hyderabad to Gurra, on the Loonee.. .. .. (25)

Route No. IX., from Hyderabad to Kurachee (usual marching route) .. (26)

Route No. X., from Hyderabad to Kurachee (direct), northern line .. (27)

Route No. XI., from Hyderabad to Kurachee (direct), southern line - .. (29)

Route No. XII., from Hyderabad to Larkhana, by Sehwan, and the right bank of the Indus .. .. (31)

Route No. XIII., from Hyderabad to Sukkur, by the left bank of the Indus. (35)

Route No. XIV., from Kurachee to Hoja Jamote, *viâ* Shah Bilawul .. (36)

Route No. XV., from Kurachee to Jerruk, *viâ* Garra .. .. .. (38)

Route No. XVI., from Kurachee to Shikarpoor, by the west bank of the Munchur Lake, and Larkhana .. .. (39)

Route No. XVII., from Kurachee to Sonmeeanee .. .. (44)

Route No. XVIII., from Kurachee to Sukkur, *viâ* west bank of Munchur Lake, and Larkhana.. .. .. (46)

PAGE

Route No. XIX., from Kurachee to Tatta Bunder .. .. .. (47)
Route No. XX., from Larkhana to Dadur, by Bagh .. .. .. (49)
Route No. XXI., from Larkhana to Dadur, by Gundava .. .. .. (51)
Route No. XXII., from Sukkur to Dadur, by Shikarpoor and Bagh.. .. (54)
Route No. XXIII., from Sukkur to Deyra, in the Bhoogtee Hills, by Shikarpoor and Shapoor .. .. (56)
Route No. XXIV., from Sukkur to Ferozepoor, by Subzulkote and Bhawulpoor .. .. (59)
Route No. XXV., from Sukkur to Imamgur, *vid* Deejee-ka-Kote .. .. (65)
Route No. XXVI., from Sukkur to Kahun, *vid* Shikarpoor and Poolajee.. (67)
Route No. XXVII., from Sukkur to Kotree (Gundava), by Shikarpoor and Kunda .. .. (71)
Route No. XXVIII., from Sukkur to Ramnuggur, on the Chenab river, by Mooltan and Jhung .. .. (72)
Route No. XXIX., from Tatta to Deesa, by Buddeena, Raoma-ka-Bazar, and Nuggur Parkur .. .. (76)

ALPHABETICAL INDEX.

A

PAGE

Abdoolla Khan 42
Adhearee.. 474
Afghans 29, 202
Aghor, the 333
Ahmed Khan Loomree 250
Ahmed Shah Abdalee 20
Akil 7
Alif Khan Bahadoor 44
Ali Murdan Abra .. .. ib.
Aliwahan.. 79
Allah-ood-deen, Emperor .. 77
Alligators .. 205, 206, 207
Ameers 30, 34
Animals 496
Arab Gudoor tribe 312
Arab Oosmananee, son of .. ib.
Arul, the.. 389
Aurunga Bunder.. 195

B

Bahadoor Khan 6
Baraboor.. 263
Bareed Luk 324
Baree Gorah 434, 456
Barozhees 126
Barran, the 262
Bean, Captain 173
Bell, Mr. Ross 110
Beloochees .. 166, 173, 178, 259
Beroeé musician.. 332
Beroees.. .. 333, 334, 337
Beyla 299, 309, 313, 377
Beyla, Dewan of.. 324

PAGE

Beyla, Jam of 314
Bhawul Khan 19
Bhawulpoor .. .. .. ib.
Bhoogtees 128
Black-mail 33
Boats of Kurachee 267
Boordees 153
Border tribes .. 125, 148, 153, 156
British India 5
Brown, Captain L. 147, 161, 187
Buggaur, the 191
Bukkar 75
Bukkur 74
Bukkur, Syuds of 71
Bunna 435
Bunnias 25, 45
Burton, Lieutenant R. F., notes on Sind by 637

C

Carless, Lieutenant T. G. 189, 501, 513
Castes 62, 66
Census Returns 62
Chakur 105
Chandookah, Purguna of .. 709
Chiefs in Sind, lists of 665
Chinny Creek 193
Chout Shurafee 223
Chronometers 580
Chunder Koops 330, 337
Clarke, Lieutenant .. 164, 168, 169
Clibborn, Major 176, 182, 185, 187
Climate of Shikarpoor 92
Commission 114

PAGE

Crops in Sind 617
Cultivation 609, 613

D

Daood Khan 6, 10
Daoodpotras 5, 8, 9
Delhi 17
DelHoste, Captain E. P.. 247, 257
Dhurumsala 324
Diseases at Tatta.. 287
Dodah, the Chief 182
Doombkees 155
Doondees.. 489
Dost Mahomed 37, 202
Drugs 602
Dubba 113
Dye plants 598

E

Earthquake 500
Edible plants 599
Education 121
Emperor Akbar 4
Exports from Shikarpoor .. 92

F

Fakeers, party of 319
Ferries of the Indus 448
Fevers, intermittent, of Tatta .. 284
Fish of the Indus .. 278, 496
Flora of Sind 591
Frere, Mr. H. B. E., notes by .. 659
Fullailee 403
Futteh Ali 105
Futteh Jung, wrecked ship .. 481

G

Ganges steamboats 562
Genealogical trees .. 47, 84
Gharra 249
Gharra Creek 283
Ghisree or Garrah, the 192
Giddoo Mull-jo-Tundo 446
Goldney, Major P. 665
Gorah, old 471, 480

PAGE

Goorchanees 126
Government of Shikarpoor .. 92
Governors of Shikarpoor.. .. 49
Grains of Sind 457
Gums 598
Gum resins 598
Guncloba.. 323

H

Hallejee 251
Hara Mountains.. .. 329, 330
Heddle, Assistant Surgeon J.F... 401
Hindoos of Sind.. 648
Hinglaj 319, 337
Hubb, the 261, 323
Hujamree.. 403, 408, 427, 466, 471
Humbus 433
Hyderabad 449, 455

I

Indigo, trade in 395
Indus, banks of 441
Indus, bed of 586
Indus, boats of .. 466, 488, 555
Indus, branches of 461
Indus, Delta of. 191, 405, 459, 490, 492
Indus, fisheries of 465
Indus, fords of 569
Indus, inundations of .. 491, 567
Indus, mouths of.. .. 406, 462
Indus, navigation of 464
Indus, rise of 489
Indus, steam-vessels for .. 561
Indus, the. 401, 427, 477, 484, 487, 501, 541, 577
Indus, tides in 464
Indus, water of 490
Inoculation in Lus 286
Intoxication 613
Intoxication, modes of, in Sind .. 635

J

Jacob, Major J... .. 123, 147
Jageer grant 78
Jaisur Khan 7

PAGE

James, Lieutenant H., report by.. 709
Jam Meer Mahomed 305
Jam Peer.. 252
Jam Tumache, palace of.. .. 253
Jekranees 155
Jumalees.. .. .. .. ib.
Jerruk 247, 254, 445
Jettoees 7, 155
Joah 433
Johnstone, Captain .. 562, 566
Jokeeas 250, 259
Juhandar Shah 14
Julalabad 17
Jumptees.. 489
Jutteel Mountains 262

K

Kabool 17
Kafir Killa 264
Kahun 147, 167, 171, 184
Kandahar 16
Karavanserai, ancient 252
Kedywaree .. 473, 480, 503
Kettoo 433
Khanpoor 6
Khelat 135, 369
Khelat, Khans of 141
Khelat, treaty with 142
Khetranees 125
Khooda Yar Khan Abbasee .. 15
Khoodie 251
Khosas 155
Khyrat 78
Khyrpoor .. 103, 105, 118
Kistee or Keerkoond, the .. 205
Koodh 252
Kookewaree .. 475, 480, 507
Koree 496
Kotasir 499
Kotree 446
Kowranie, the 252
Kucherees 34
Kujjuks 126
Kulhoras.. .. 15, 47, 82, 105
Kulla-ke-Kote 263
Kurachee.. 189, 196, 203, 209, 257

PAGE

Kurachee, trade of .. 198, 217
Kurruck 195
Kutcheree 251

L

Lasharees 126
Layaree, the 197
Layaree town 309, 377
Loll Chetta 499
Longitudes 581
Loomrees.. 250
Lowanas .. .. ib.
Lukkee Mountains 262
Lukkee, town of.. 6
Lukput 499
Lus .. 197, 299, 304, 343, 383
Lus, revenues of.. 306
Lus, trade of 307

M

Macleod, Mr. J., memoranda by.. 699
Mahal Chubootra 219
Mahal Meer Boree 221
Mahomed Hoosain 28
Mahomed Shah 16, 17
Mahonas, tax on.. 261
Mamooda-jo-Gote 434
Market at Shikarpoor 96
Meer Abool Ghys 73
Meer Ali Moorad .. 108, 111, 112
Meeanee 113
Meer Fukhr-ood-deen Oolawee .. 44
Meer Moobaruk.. 108
Meer Roostum 108, 112
Meer Sohrab 107, 108
Meerza Ata Mahomed Moonshee. 26
Meerza Bukhtawur Khan .. 13
Memorandum, Mr. R. K. Pringle's. 114
Meteorological register at Tatta.. 292
Mhars 7, 8, 9
Mogul empire 4
Montriou, Lieutenant C. W. .. 363
Moobaruk Khan.. 11
Moograh 438, 485
Moonara 432
Moorad Gunga 16

	PAGE
Moosa Khan Mhar	7
Mootnee	481
Mukallee Hill	281
Munchur Lake	389
Munhora Fort	262
Munhora Point	193
Murrees	132, 178
Musulman portion of Sind	639
Muzarees	153

N

Nadir Shah	5, 16, 17, 18
Nal Valley	375
Napier, Sir C.	111, 112, 113
Nara, the	389
Nasir-ood-deen Kubachu	77
Nizam-ood-deen	43
Noomreeas	323, 329, 334
Noor Mahomed	15, 21
Nownahar, Treaty of	111
Nuffoosk, pass of	164, 166, 178

O

Oormarah	307
Oot	312
Outram, Major J.	111

P

Pearl banks and fishery	701
Peer Mungah	204, 264
Peer Sultan Ibrahim Shah	8
Pelly, Lieutenant L.	103, 118
Persia	17
Peshawur	ib.
Photo Shootur of Lus	286
Piltee, the	192
Pind Dadun Khan	587
Pinyaree	404
Plants	591
Plants, camel fodder	606
Plants used in distillation	608
Plants yielding soda	606
Police system	32
Poolajee	164, 186
Poorally Mountains	376
Poorally, the	303, 311, 328
Poput	438, 485
Postans, Lieutenant T.	85, 389, 395
Preedy, Captain H. W.	665
Pringle, Mr. R. K.	114
Proclamation	115
Pubb Mountains	323
Punjaub	577
Puthans	202

Q

Quettah	173

R

Rais	105
Raitt, Lieutenant	185
Rambag	195
Rana-ka-Kote	333
Ras Mooaree	191
Rathborne, Captain A. B.	665
Religions	62
Revenue of Shikarpoor	92
Roree, Syuds of	71
Routes from Shikarpoor	94
Routes through Sind	775
Ruheem Khan	344
Runnee-ka-Kote	262
Run Pitteanee	253

S

Sahoo	443
Salt beds of Sind	705
Sea fishery of Sind	703
Seamee	435
Seeahn	466
Seebee District	126
Sehwan	257
Settah	485
Shadad	105
Shah Abbas	4, 15
Shah Alum	80
Shah Jehan	79, 80
Shah Newas	121
Shah Soojah	35, 36, 37, 38
Shaikh Ameen, tomb of	252
Sheernee	219
Shere Beg	173, 181

PAGE

Shikarpoor.. 3, 9, 17, 24, 25, 26, 40, 85, 87
Shuhr Roghan 316, 317
Silk trade at Shikarpoor.. .. 100
Sind, people of 425
Sind, rulers of .. .. .. ib.
Sind, Upper 125
Slaves 220, 646
Small-pox of Lus 286
Soneree-ke-Dund.. 253
Sonmeeanee.. 307, 309, 319, 321, 325, 341, 378
Sonmeeanee, trade of .. 347, 353
Soomrees.. 259
Sohrab 106
Springs, hot 205, 264
Spring, salt 208
Statements, tabular, regarding the revenues at Kurachee 225
Steam-vessels 561
Surtoff 165, 185
Syud Budr-ood-deen 73
Syud Kazim Shah 33
Syud Khan Ruzuvee 74
Syud Mahomed Makkyee .. 73, 75
Syud Nasir-ood-deen 74
Syuds of Bukkur.. 82
Syud Sudr-ood-deen 79
Syud Yacoob Khan Ruzuvee .. 74

T

Talpoor branch of Beloochees .. 105
Tamarisks of Akil 8
Tank, the milk-white 205
Tanning 599
Tatta 257, 269, 271, 483
Teeteeah 482, 509
Time 613
Timour Shah 25
Tombs, Mahomedan 334
Trade between Shikarpoor and Kandahar 96
Trees of Sind 596

U

Ularukee.. 315
Ungeekhera Bheram Luk .. 323

V

Vaccination 121
Vikkur, boats of.. 469
Vikkur Bunder .. .. .. ib.
Vikkur, trade of.. 470
Villages on the Indus 453

W

Wanyanee 486
Waterfowl 496
Winchester, Surgeon J. W. .. 269
Wood, Lieutenant J. 541
Wool 346
Wrecked ship *Futteh Jung* .. 481
Wulee Mahomed Khan, Lugaree. 27
Wulee Mahomed, of Wudd .. 344

Y

Yar Mahomed 13

MEMOIR

ON

THE RIVER INDUS.

BY THE LATE

ASSISTANT SURGEON J. F. HEDDLE,

BOMBAY MEDICAL ESTABLISHMENT.

Submitted to Government in May 1836.

MEMOIR ON THE RIVER INDUS.

PART I.

In the present Report I purpose to state, in as concise a manner as I am able, all the information regarding the physical geography and actual state of the river Indus, which my late voyage to Hyderabad, performed by order of Government, afforded me the opportunity of collecting.

It is already known to His Excellency in Council, that the *Indus* steamer, in which I embarked, reached the main stream of the river Indus, not by that embouchure by which the principal body of the water is discharged, but by the collateral branch, called Hujamree, which, in maintaining the intercourse between the upper part of the Indus and the sea, answers the same useful purpose to navigation, in relation to this river, that is served by the Hooghly in reference to the Ganges.

This circumstance deprived me of the opportunity of observing the main stream in that part of its course which extends between its embouchure and the point where the Hujamrée branch separates from it; and though, regarding this part, which I did not visit personally, I collected some information from Natives, which I found to be somewhat at variance with former descriptions, but corroborated by the observations of Lieutenants Pottinger and Carless, yet, as the river here has been fully examined by the abovenamed officers, I shall confine the observations which I have now the honour to submit, to the main stream between the latitude of Hyderabad and the point where it gives off the Hujamree, and to the latter branch from its efflux at Seanee until it reaches the sea.

Between the points to which my observations refer, that is between the latitudes of Hyderabad and Seanee, the main stream of the Indus, during the period of our visit, gave off no considerable branch. Our voyage did not extend to the point where the Fullailee separates from the river; but the condition of this branch, as observed near Hyderabad, gave incontrovertible evidence that a very small body of water entered

it during the season in question ; for here the Fullailee exhibited merely a succession of almost stagnant pools, never exceeding the depth of two or three feet, and in which it was difficult to observe whether there existed any current. The point at which this branch is generally described to rejoin the main river, near Trikul, was found with some difficulty, for not only was there no water observed in the bed, but the bed itself could scarcely be distinguished.

The Pinyaree, which is the next offset from the Indus, was observed in nearly the same state as the Fullailee, with even less water; and after this, on the left bank, no derivation entitled to the name of a branch is met with, until we reach the point which forms the limit of my observations on the main river.

On the opposite (right) bank of the river, between my limits, we expected to find, near the village of Tanka, the apex of the Delta, and the point where the waters of this river are described to be shared between the two great channels, viz. the Buggaur, delineated as forming its western, and the Sata its eastern arm. But no such division was observed; and the Indus, at the point in question, flowed in a single and undivided bed, the trace of the old Buggaur, indeed, being observable, but the level of the lowest part of its bed was elevated between six and seven feet above the level of the surface of the river, at the period of our visit. Below this point, at the distance of ten miles, we observed the dried bed of the Teteeah, which in the season of the swell conducts a portion of the waters of the main river into the Hujamree at the Seanee section; but this is used merely as a temporary canal of irrigation ; and neither from the capacity of its bed, nor the length of its course, does it deserve to be considered as a branch. From this point, until we reach our limits again, no other branch is observed to be given off by the Indus.

Passing the point where the Hujamree separates, it is necessary for me to continue my observations on the authority of the officers whose examination I have noticed, and on the authority, also, of Natives, who afforded me information regarding the district which I could not examine myself. Below the separation of the Hujamree, the main stream at present gives off no branch from the right bank ; for the channel of the Gorah, by which Captain A. Burnes passed into the main river, while on the Lahore Mission, is at present quite obliterated near the former point of efflux, and the lowest part of the bed is elevated, like that of the Buggaur, above the level of the surface of the river, in such a manner that, even during the annual swell, the water cannot enter it.

On the left bank, Lieutenant Pottinger observed the former channel of the Mull " nearly choked up," a small rivulet, which he stepped over,

being all that remained of this channel. Below this point, the same officer observed the remains of the channel called Mootnee. This had a width of "about thirty yards"; and though it admits, as the Natives informed me, of the passage of small doondees from Shahbunder into the main stream, no sea-going vessels, even of the smallest size, can enter the latter by this channel; but, on the contrary, cannot reach closer to the port of Shahbunder, situated on that branch, than eight or ten miles.

After this point, the main river enters the lowest region of the Delta, where the elevation of the banks is nearly equal to that of the surface of the river, and even where a portion of the land contiguous to the river is overflowed at every high tide. Here the channel creeks commence, which derive the water which they contain from the sea, during the tide of flood, but do not discharge any portion of the fresh water of the river. These have been described as so many mouths of the Indus. But though their existence is serviceable, in so far that some of them afford access at high tide, by which small fishing-boats can penetrate into the river, as well as a passage for doondees to pass along the line of coast, yet the practice of denominating and delineating, without distinction, as mouths of the Indus, every point at which the sea insinuates itself into the low coast of the Delta, and which, at certain times of tide, afford this partial communication with the river, without attending to the essential difference between the mouths which discharge the waters of the river and the salt creeks which do not perform this function, has led, in combination with other circumstances, to exaggerated notions regarding the dimensions of a river which was supposed to require so many outlets by which to discharge its waters into the sea. Now that the actual state of the Indus is more precisely stated by professional men, sent by this Government for the purpose, this overrated estimate is apt to be followed by the extreme of disappointment; as if, because the Indus does not reach the expectations formerly entertained of its magnitude, it must therefore be regarded as entirely unfit for the useful object of commercial navigation. These extremes of opinion are equally distant from the truth.

To resume the description of the branches into which the Indus is divided. Having enumerated those which are observed to be given off from the main river, after it passes the latitude of Hyderabad, I shall follow the course of the Hujamree, and, after observing the offsets from this ramification, I shall proceed to state the conclusions to which the preceding observations on this point have led me.

After leaving the main stream at Seanee, no branch is given off by the Hujamree until it passes Baree Gorah, and reaches the small Raj of Mamooda-jo-gote, at which point two branches are observed. Only one

of these pursues a course of any length, after leaving the Hujamree. This is called Kuttoo, by which communication is kept up with the Recheb Creek.

On passing into this branch, however, you leave the fresh water of the river, and the navigation towards Darajah and Kurachee depends entirely on the flood tide entering these channel creeks from the ocean; for during the retreat of the tide all progress is impossible, the channel being left completely dry. After passing the point where this channel is given off, no offset, in any way entitled to the appellation of a branch, is observed on either bank, until you arrive at the Buggana, which is a salt-water channel, running nearly parallel to the coast, at the distance of a few yards from the coast-line.

If, in the enumeration of the branches now given, I have not overlooked some important offset, it will appear evident that no more than three among the numerous mouths usually attached to the Indus can serve the purpose of discharging the body of the water of that river, after the latter passes the latitude of Hyderabad at least, during the ordinary state, viz. that which it exhibits for eight or nine months* in the year. These mouths are—1*st*, the principal one, the Minejo or Munuejah, which discharges the main body of the water; 2*nd*, the embouchure of the Hujamree; and 3*rd*, that which is supplied through the channel of the Mootnee.

That the main river does not, after passing Seanee, subdivide into any other than those above enumerated, is confirmed by the observations of Lieutenants Carless and Pottinger. Lieutenant Wood and myself have observed, that from the Hujamree no offset meriting to be considered as a branch is given off, after that branch itself separates from the main river. As for the Mootnee, the small breadth which it assumes, even at the point where it is first given off, and its limited depth, which is barely sufficient for the navigation of doondees, requiring from eight to eighteen inches of water, preclude the possibility of any great subdivision of the waters of that branch.

The same observations may apply to the numerous branches which, even in the latest maps,†—in that, for instance recently published by sanction of the Bengal Government,—are delineated as sharing the waters of the Indus, to an extent nearly equal to that of the main river itself. An examination of the river, as laid down by Lieutenant Wood,

* During the remaining months, the river cannot be approached from the sea; so that, though during the swell the larger volume of water discharged facilitates the internal communication by the Indus, yet to the foreign trader, and for transit, the condition of the river during the dry season is alone interesting.

† Captain A. Burnes, when proceeding on his late Mission to Hyderabad, did not cross a single branch between the Koree and the Fullailee, though in the maps several are delineated crossing the direction of his route.

will prove that, for the extent therein delineated, no branch of any magnitude can be supplied by the Indus, at least during the ordinary state of the river. These branches, therefore, the appearance of which in our maps has added to the effect of exaggerating beyond the reality the dimensions of the Indus, have been intended, evidently, to represent canals of irrigation, by which the waters of the river are, during the swell, distributed over the country. No distinction, however, being laid down, between objects so essentially different as branches of apparently equal magnitude and permanence with the river from which they are derived, and mere temporary canals, natural or artificial, which for two or three months of the year only contain water in their channels, the misunderstanding on this subject was as natural as it has been general; but it may now be safely concluded that no branch, except those which are above described as separating from the Indus after it passes Hyderabad, and no mouths but those which have been enumerated, can be considered as subservient to the general navigation of the river. And this also we may hold as certain, that whatever local changes take place in the channels which distribute and discharge its water,—except, indeed, the river Indus undergo a general and permanent increase of volume,—we cannot reasonably expect to find during one season more numerous or larger branches than during another. These relations may change, and we may witness, during one year, the water of the river distributed among a greater number of channels than during the preceding season; but we shall also find that the number of branches is maintained at the expense of the volume of water discharged by each; and if the river ever again become divided between the Buggaur and Sata arms, the dimensions of those channels now in existence will be diminshed by the quantity supplied to the channels at present dry: but this arrangement, instead of favouring, would greatly increase the difficulties of the navigator, who, even in the present concentrated state of distribution, finds, in the few channels now open, barely sufficient depth of water for his purposes.

To reduce the fact to its simple expression: the Indus opposite Hyderabad was found to have a mean breadth of 616 yards, with a mean depth of twelve feet.* Let us distribute this volume over the area represented in our maps as occupied by the various branches and numerous embouchures of the Indus, and we shall find that a very small portion of water indeed can be shared by each. In the swell of the river it is true that this volume is increased, and that branches which contain no water during the rest of the year will, during this

* Eighteen or twenty feet may be estimated as the mean depth during the season of the swell.

season, be filled: but this fact requires to be so stated; otherwise we are apt to mislead,* and to a serious extent, in a country to which, from political causes, access is so difficult.

In this way, a feature which is only temporary has been taken as a permanent character of the river, and the Indus has been endowed with dimensions exceeding the Ganges far, and approximating to, nay even exceeding in size, one of the largest rivers of the American continent, the Mississippi. But it will be seen that the increased volume of water which, even in the season of the swell, passes through the Indus, does not require the vast hydrographical system for its drainage and discharge which we observe represented as forming the lower portion of the river.

Having premised these remarks, I shall proceed to describe, in succession, the different points connected with the portion of the Indus which has been the subject of personal observation during my voyage from the sea to Hyderabad.

The extent to which my observations refer may be naturally divided, as regards the river, into two distinct portions, viz. the collateral branch, and that portion of the main trunk which we traversed. These two portions contrast in various particulars, and even each of them, in different portions of its course, undergoes changes, and presents variations in its physical characters, which would justify a further division, in order to render this description more clear, did I not find that such actually obtains among the Natives; so that, in the more detailed topographical notice which forms Part II. of this paper, I have only had to follow the local divisions already established by the Natives, in reference both to the main river and to the secondary branch.

The mouth of the Hujamree, by which we entered the Indus, was found, by the observations of the Officers of the Indian Navy, to be situated in lat. 24° 13′ 20″ N., and in long. 67° 23′ 20″ E. From this point to that at which it separates from the main river, this branch takes a general direction nearly ENE., whereas the general direction of the main stream between Seanee and Hyderabad is nearly NNE. The direct distance between the two extremities of the Hujamree may be stated at twenty-seven miles. On the other hand, the length of the main stream, from the point of separation to the latitude of Hyderabad, assigning lat. 25° 22′ N., long. 68° 41′ E. as the geographical site of the city, will amount to fifty-seven miles. By the windings of the river, the length of the course of the Hujamree was computed to be fifty-seven miles, and that of the main river seventy-four miles, which will give to

* In the same way, the Ganges may be stated to have a breadth of 100 miles; for, during the season of the rains, the river dilates to that extent in the lower part of its course.

the former the proportion of two miles of winding to every mile, and to the main river seventy-four miles for the same extent.

The velocity with which the current flows varies of course greatly as we observe it in the main trunk and in the collateral branch. In the former, the general velocity of the surface current may be fairly stated at from three and a half to four miles an hour during the dry season, not taking into consideration the velocity witnessed at the sudden bends, observed in several points of the Moograh section, where the current is much more rapid than elsewhere. The current in the Hujamree did not exceed one mile and two furlongs during the ebb, and one mile and one furlong during the flood.

At the mouth of the Hujamree, we have a depth of nine feet at low-water; in the latitude of Baree Gorah the river assumes a mean depth of seventeen feet, the maximum being five fathoms, the minimum one fathom. Between this point and Seanee, the depth of water rapidly decreases in this branch, until we found, in the month of December last, that the maximum depth was reduced in several places to three feet, and in more than one situation to two feet and a half.

In the main stream, the depth of water seldom exceeds five fathoms, and rarely did we fail to find, in some point or other of a transverse section of the bed, a maximum depth of less than one and a half or two fathoms. The manner in which this depth is distributed forms a point worthy of consideration. We observed that the navigable channel presents, generally, the form of a narrow gut, with the sides rising abruptly, the bed for the remaining extent forming a broad, shallow flat. Where the soundings were greatest, we always found the channel most confined, and narrowest, and when the maximum depth was diminished to two or two and a half fathoms, we observed that this depth was more equally distributed from bank to bank, the current more moderate, and the navigation most easy. In my description of the sections of the river, I have furnished more details regarding the depth of the main stream.

The influence of the tide extends along the whole course of the Hujamree, but above Baree Gorah this phenomenon is so much reduced that, unless during the springs, and then even to a very limited extent, no practical advantage is derived from it in the navigation of the river. I have elsewhere stated that the range between the lowest level during the ebb, and the top of the flood, amounted to seven feet at the mouth of the Hujamree; to three and a half to four feet at Baree Gorah, and at a point nearly half-way between Baree Gorah and Seanee we found a maximum rise of eight inches. Passing into the main river, the influence of the tide becomes almost imperceptible, and in the latitude of Tatta a rise of three inches during the springs was, with some hesitation,

attributed by Lieutenant Wood to the influence of the ocean tide. Beyond this point, however, even this equivocal evidence of the tidal influence was lost.

In watching the diurnal movement which takes place in the general level of the Indus, we observed that the depression which, during the months of our visit, amounted on an average to half an inch daily, was occasionally disturbed. On some occasions, the nature of this disturbance consisted in a sudden rise of one inch or so, instead of a depression of half an inch per diem, which might be denominated the normal rate.

On another occasion, instead of a rise, the level of the river would experience an unusual depression, greater than the maximum depression which was considered the ordinary rate. Again, on other occasions, for twenty-four hours the level would become stationary. To account for these changes, we conceived that the ordinary depression resulted from the general outflow or drainage exceeding the amount of supply poured into the river at this season; the extraordinary depression always corresponded to the prevalence of strong northerly winds, which, though at the season of our visit we had the temperature much reduced, were likewise very dry, and by evaporation, as well as by their mechanical agency, operated in depressing the general level. The occurrence of rain in the countries to the north was assigned by us as the cause of the opposite effect, viz. the unusual rise; and we were borne out in this supposition by the occurrence of rain in Sind, which followed the greatest rise of this kind which we observed, and which proceeded from the direction assigned as the regions where the fall of rain had occurred.

The third effect was observed to correspond to the period of the springs; and the interrupted action which was then observed, as regarded the movement in the level of the surface of the river, I attributed to the influence of the pressure resulting from the augmented quantity of the waters of the ocean introduced into the inferior channels of the river at this period. To this extent, therefore, if my observation be correct, the influence of the tide may be felt even at the latitude of Hyderabad.

The waters of the Indus do not enjoy the reputation which the inhabitants of Egypt attribute to those of the Nile. Though this river forms the mainspring of life to Sind, as the Nile does to the country through which it flows, the Indus water does not possess that lightness, nor those delicious qualities which, in the figurative language of the Egyptian Musulmans, "had their Prophet ever known, would have induced him to have supplicated heaven for a terrestrial immortality, that he might enjoy it for ever."

But though an object of worship with the Hindoos of Sind, as the source of the fertility of the country, the water of this river, as it passes through the lower part of its course, has not the qualities usually possessed by river waters. Like most of the Indian rivers, the Indus exhibits a foul and muddy appearance, and, even when filtered, the water cannot, by this mechanical process, be deprived of all its impurities, but assumes a milky or opalescent tinge. The mud contained in the water of the main stream, at the latitude of Hyderabad, I found to amount to 4.218 per cent.; that of the Hujamree branch amounted to 0.061 per cent. Similar experiments were made by Lieutenant Carless near the embouchure of the main stream, but his results I have not been able to procure.

The amount of mud suspended by the waters of the Indus is much less than the appearance of the water would lead the observer to expect. It is also much less than that which was found by Major Rennell to be contained in the waters of the Ganges, which, according to him, amounted to one-fourth. The nature of the mud thus suspended I shall notice when I consider the nature of the soil of Sind, with which it is identical in chemical composition. Besides the mud suspended, these waters contain, in a state of solution, a proportion of saline ingredients, principally common salt, carbonate of soda, and nitrate of potash (or nitre). The amount of these saline ingredients in the current of the river is not so great as to render the water disagreeable; but when the water becomes stagnant, the foreign matter is taken up from the soil, which is impregnated with the above substances to a considerable amount, so that the water of the Indus itself is preferable to that derived from the ponds, or from those branches in which the current is feeble.* Some of the water which I carried away for examination was found, when opened here, to be impregnated with sulphuretted hydrogen, a property analagous with what is usually observed in the waters of muddy rivers.

The banks of the Indus, including the branch of the Hujamree, gradually increase in height as you ascend the river. In the lowest part of the Delta, that is the region contiguous to the coast, the banks are so low, that at high tide the level of the water nearly reaches that of the bank, the difference not exceeding two or three feet. As you approach Baree Gorah, the bank becomes gradually higher; till, at the latter place, it may reach the height of five feet (average) above the surface of the water. But along the whole course of the Hujamree, the height of the bank is not such as to protect the country from inundation during the

* This is a fact of importance, to be kept in mind,—in locating any large body of troops for instance. The situation should be chosen as near running water as practicable, that of the dunds or ponds being unwholesome.

season when the river swells, so that, to secure themselves against such an occurrence, the inhabitants have had recourse to erecting bunds or dykes, which, as we shall afterwards find, prevail along the whole of those sections of the Hujamree which lie between the port of Baree Gorah and the main river, and which are called by the Natives Bunna and Seanee. When we arrive at the latter point, and enter the main river, we find that the steep bank assumes a greater elevation, and attains the height of fifteen feet. This elevation is maintained, with very little increase, until we reach the latitude of Hyderabad, which forms the northern extreme of my limits.

The banks of the main river present some varieties in appearance, which it is of importance to notice. Besides the sloping or shelving bank, which exhibits the same character throughout, whether observed in the main trunk or in the branch, the steep banks are sometimes found to present a single abrupt, wall-like face; at other times it becomes, as it were, divided, and that which forms the immediate barrier to the water during the dry season has the height of about seven feet, while further from the river, at various distances from the first bank, a second is observed, the elevation of which, added to that of the first bank, equals the total elevation of the bank which presents no such division. When the bank presents this form, the lower one serves as the barrier to the water in the ordinary state of the river, and the second or upper bank confines the stream during the swell.

The distance between these banks, when double, I have said varies: sometimes we found them separated by a ledge or flat stage of no more than three or four yards in breadth, but in other places the breadth of this is increased to sixty or eighty yards.

I observed in the banks along the whole line of the main river, that canals were cut so low down that the floor of the latter reached half-way between the summit of the bank and the level of the water. I inquired the reason for such a practice, seeing, as I then supposed, that the inundation of the river ought to supersede the necessity of constructing canals to conduct the waters, which, I imagined, were spread over the country, as we see on the banks of the Nile, or in the lower plains of Bengal. But I was given to understand, that no such inundation occurs in Sind, except in a very limited belt near the sea, and that were these canals not dug, and carefully maintained, no water would reach the fields from the river.

In that part of the river where the sugarcane and garden produce are cultivated during the dry season, when the water of the river is low, two water-wheels are required in those situations where the bank is double. The first wheel, placed on the margin of the lower bank, elevates the water to the intermediate ledge, along which it flows in canals until it

reaches a reservoir situated at the foot of the second or higher bank, to the summit of which the water is lifted by another wheel. The latter is generally turned by a pair of bullocks, the former, that nearest the river, by a camel.

The soil of which these banks are composed will be mentioned hereafter; and for the phenomenon of the falling in, which the banks of the Indus, in common with those of the Ganges, undergo, though apparently to a much greater extent, I beg to refer to the description of the local divisions in Part II. of this Report.

The river Indus, after it passes the latitude of Hyderabad, undergoes an annual elevation in the level of its waters; but the swell does not reach such a height as to produce the effect of inundation in any degree. In this particular the Indus differs from the Ganges and from the Nile,* and resembles the Euphrates, or perhaps more closely the Tigris.

It may be said that this distinction is verbal, or that the difference consists only in degree; but the effects are important to note, for this difference in the rise of the river, by preventing the occurrence of a general inundation, influences in a great measure many important particulars in the economy of the inhabitants, as well as the nature of the productions, animal and vegetable, of the country. On this account it is necessary, for the irrigation of the crops, to cut canals† down the bank of the river, which conduct the water to the grain fields, and distribute this element to whatever part it is required in during the season, when the level of the river is such as to meet that of the mouth of the canal cut in the face of the bank. The care of these canals, so essential to the prosperity of the country, is placed under the immediate superintendence of the Sind Government, and the operation of cutting and repairing them is carried on by a certain class of people, whose occupations are confined to this object. For the expense thus incurred, the Government exacts an increased taxation on the lands which these canals irrigate, amounting in all to four-tenths of the produce; whereas on the produce not irrigated in this way one-tenth less is imposed.

On examining the causes which produce the periodical swell of the

* With regard to the Nile, the statement must be made with reservation. That accurate observer, Mr. Browne, in his "Travels in Africa," states that "Mr. Gray's well-known description of Egypt, as immersed under the influx of the Nile, is exquisitely poetical, but far from just. In Upper Egypt, the river is confined by high banks, which prevent any inundation into the adjacent country. This is also the case in Lower Egypt, except at the extremities of the Delta, where the Nile is never more than a few feet below the surface of the ground, and where inundation of course takes place." The same remarks will apply generally to the river Indus, after it passes the latitude of Hyderabad.

† Canals are also necessary in Egypt; but in that country these commence at the limit of the inundation, at some distance from the river. In Sind, the canals open on the immediate bank of the river.

Indus, we find the explanation of the diminished rise of this river, compared to that witnessed in the Ganges. This latter river is now well known to derive the water by which the extensive inundation is produced from two sources, viz. the melting of the snow on the mountains whence the river itself and some of its tributaries take their rise, and secondly, by the periodical rains which fall in the lower plains of Bengal.

By the first of these causes, a rise of fifteen feet and a half is said to be produced in the Ganges, which is one-half of the full amount of rise as stated by Major Rennell. The country through which the Indus flows in the lower portion of its course, though differing little in latitude from the corresponding regions on the Ganges, are, as regards climate, still more extra-tropical, and are deprived of the abundant rains which supply the source of one-half of the rise experienced by the Bengal river. What is observed of Lower Sind may more strictly apply to the countries to the north, where, though occasional showers are more frequent than in the south, these are not of a tropical character, and never, by their amount, can materially or permanently affect the rise of the waters of the Indus, which river must depend, for the periodical swell which it exhibits, entirely to the melting of the snows on the mountains from which it derives its sources, at the season of the year when the sun is in its northern declination.

The amount of rise from this cause will be found, in the Indus, nearly to equal that which is observed in the Ganges as produced by the same phenomenon. The river may, in the northern part of Sind, attain, during the swell, an elevation of fifteen feet;* but after passing the latitude of Hyderabad, deprived as the Indus is of the source of supply which the rains furnish to the Ganges, the rise in the former river does not exceed the height of eight to nine feet above the level at which we observed the surface in the month of January. An elevation to this amount may take place in the section of Sahoo, but lower down, near Tatta, Lieutenant Wood and myself measured the elevation of the line which the Natives assured us the river reached in the season in question, and we found this level to exceed that to the surface of the river by six feet and a half.

As it approaches the sea, the elevation of the river during the swell gradually diminishes, until it attains the general level of the ocean;† but in the lower part of Sind, for a strip of from five to six miles in

* In the latitude of Larkhana, fifteen feet may be the amount of rise. About this point there is a deviation from the river during the swell, by which the Lake of Munchur, on the west bank, is supplied, and extensive marshes are formed, as the Lemloon on the Euphrates.

† This level, however, undergoes a local elevation on the Coast of Sind during the prevalence of the south-west monsoon, the season corresponding to that in which the water of the Indus rises.

breadth, from the coast-line, we observe the phenomenon of a general inundation, nowhere else witnessed in Sind, between this region and the latitude of Hyderabad.

In the character of their rise, and the causes which produce this phenomenon, the three great rivers the Ganges, the Indus, and the Nile, may be thus contrasted :—

The Nile owes its inundation solely to the waters which the periodical rains supply ; the Indus, whose increase is derived solely from the melting of the snow, attains an elevation of fifteen feet ; and the Ganges, in which both these causes combine to produce its annual inundation, elevates its water to thirty-one or thirty-two feet.*

The precise elevation which the waters of the river Indus assume cannot, of course, be positively determined, unless this amount be actually observed by some officers stationed in the country during the season when the rise takes place. The statements which I have given on this subject are founded on the evidence of the Natives, who on such a point could not mislead, and on personal observation, directed to the following facts :—

1st.—The existence of canals which lead from the bank of the river, which are maintained at great expense, are of no use during the dry season, as the river sinks far below their level, and would be superfluous in the season of the swell, did the water of the river overflow its banks, as do the Ganges and the Nile.

2nd.—The appearance of the country where this inundation is prevented by the elevation of the bank, contrasted with that of the limited belt near the region where a general inundation takes place annually. The former presents a vegetation on the surface, which would not exist if the plains on which the species grow were thus annually overflowed ; for by their nature these plants are adapted to a dry, arid soil, which their hard substance, stunted growth, and leafless appearance, betray, and which, were such a phenomenon to occur yearly, would be destroyed, and give way to plants accustomed to a moister soil. In the region where the general inundation is said to occur, we find the vegetable physiognomy to present a different aspect : instead of the thorny shrubs which are met with only here and there in the upper part of the country, leaving large patches of the soil uncovered, we have in this situation a carpet of grass, which clothes the whole surface, and nourishes herds of buffaloes, which cannot exist in the region where the inundation does not occur.

3rd.—The appearance of the country, as regards the habitations of

* This is the estimation by Rennell ; subsequent observers have reduced the amount of the rise in the Ganges.

the people, also differs: where the overflow takes place, the huts of the inhabitants are small, constructed solely of matting, and easily transportable; but in the districts where the inconvenience of such an inundation is not felt, the dwellings are built of more substantial materials, and the villages are composed of a larger number of houses: witness Kelaun, Ooplana, Jerruk, Kotree, &c.

The lower portion of Sind, which is called the Delta of the Indus, has been said to resemble the Delta of the Nile, in being the gift of the river which flows through it, and in the excessive fertility with which the rich deposit endows the soil. Both these assertions, however, must be admitted with some modifications. The soil of the Delta, and the soil of Sind generally, is very far from possessing the qualities which render soils fertile. If the Delta of the Indus be a gift of that river, so is the whole surface of the great valley which forms its basin, extending from the plains of the Punjaub to the sea, and from the mountains of Hala on the west to the plains of Rajwara on the east; for over nearly all this extent, the soil which is met with on the surface of the low plains resembles in mineralogical character that formation which constitutes the soil of the Delta.* In the same way that by the agency of water in some form have been deposited the alluvial plains, through which most rivers are observed to cut their course to the sea, as those of Bengal and of Mesopotamia, so, no doubt, have the plains extending on each bank of the Indus been formed; but we are not warranted in deciding, from the feeble action of deposit witnessed at the present day, that such extensive alluvial depositions have been created by these rivers in the condition in which they are now observed. The amount of deposit formed by the Indus must be very small, as the quantity of mud suspended in its waters is limited: besides, the action of this river is not confined to that of carrying down mud from the upper to the lower part of its course; for in the branches of the Delta the waters of the river contain much less mud† than we found to exist in the upper part, where the current flows with the greatest rapidity; so that before the waters of the river enter the sea, they deposit in some part of the bed all the solid matter which, where the current was rapid, they held in suspension.

* At Bhikaneer the soil, as far as description can be depended on, appears from the account in Mr. Elphinstone's book to be identical with that of Sind. Over the Runn of Kutch, I presume, the same soil prevails, and in the Gulf of Kutch, as well as near the whole coast of that province, the submarine surface is composed of the same marly alluvium that I found at the mouths of the Indus at the distance of ten miles from land.

† The quantity of sediment contained in the lower part of the main river is, as Mr. Carless informs me, scarcely appreciable. I have above stated the relative quantities in the Indus at the latitude of Hyderabad, and in the branch of the Hujamree at the distance of six miles from the sea.

Much has been said of the invasion of the land on the ocean, produced by the sediment thrown* into the latter by the river Indus; but no satisfactory facts, either of an historical or physical nature, have been brought forward in this instance, to prove the correctness of these assertions. With regard to the Ganges, Major Colebrooke has shown examples of the rapid filling up of some branches of that river, and the excavation of new channels, where the quantity of soil removed amounted, at the most moderate calculation, to forty square miles. The same may be observed of the Indus; but the removal in these cases may be confined to an action of transfer only from one point to another, but not a total removal of the soil thus displaced from the land, to be thrown into the sea. Where the action of this local and limited transport of mud takes place to the greatest extent, during the process of filling up of some branch, and the excavating of new channels, the current of the river is more rapid; but in the part of its course contiguous to the sea, the loss of velocity is attended with loss, also, of transporting power; and, in fact, the action which is witnessed in the higher part of the river, and which would appear to the observer to consist in a general movement towards the ocean of the particles of mud suspended, is nothing more than the shifting of these particles from the side where the bank is steep, to that which presents a flat, shelving face, where the current is consequently less rapid, and on which the sediment is quickly deposited, instead of being carried outward to the ocean. In many instances, a particle thus removed is deposited in a position where it is actually at a greater distance from the ocean than that from which it was carried.

This subject, however, from its great importance, would require more full discussion than I am at liberty in this place to bestow on it. It would require, likewise, the collection of a greater number of well observed facts, than we at present possess with reference to the Indus, to enable us to arrive at any satisfactory conclusion. It involves this question of great interest, both as regards the past history of this river, and the future prospects of commerce, as connected with its navigation, —Whether the channel of the Indus has been, and is at present, progressively and gradually deteriorating; or whether this seeming deterioration is merely a vicarious action, by which a channel or a system of channels are filling up, whilst others are excavating? In the one case, the extensive hydrographical system, of which we witness, as it were, only the remains, in the numerous destroyed branches, and in the diminished number of the embouchures, which at present serve

* The quantity of sediment suspended by the sea near the mouth of the Hujamree is not greater than that observed in the ocean water along the Malabar Coast, near Bombay, during the dry season.

to discharge the waters of the river, contrasted with the innumerable outlets which formerly opened into the ocean, along the whole line of the Sind Coast from Kurachee to Juckow, might have been at one time necessary; and the countries from which the Indus derives its waters may have experienced a change in climate, or in their meteorological relations, which has produced the effect of a diminished supply of water thrown into this river; or, on the other supposition, the desertion of one system of channels may be caused merely by a change in the direction of the river, but not by an absolute diminution in the quantity of water flowing into the sea by this great valley.

I have stated that the sediment suspended by the water of the river is identical with the superficial formation which constitutes the soil, not only of the Delta, but of all the parts of Sind which I had the opportunity of examining. It consists of what, in the language of geologists, would be called a foliated marl, and is composed of argile or pure clay, and carbonate of lime, essentially to which is associated a proportion of mica, in the form of a fine sand. This soil contains a large proportion of common salt, besides carbonate of soda, and nitre.

I have not yet determined the exact proportion of salt (which is known to prove so inimical to the growth of most cultivated plants) contained in the soil of various parts of the banks; but a general idea of the abundance in which this ingredient exists may be derived from the fact that the face of the banks is everywhere covered with a white crust, composed of this substance. The surface of the soil exhibits the same crust whenever a small quantity of water is thrown on it; as, during a shower of rain, the salt being in the first place separated from the other insoluble ingredients of the soil, is, by the evaporation of the water, crystallized in thin layers, which remain on the surface.

Compared to the soil found on the banks of the Ganges, we find in that of Sind a general similarity; the most striking difference, however, consisting in the absence of the muriate of soda in that of Bengal, the presence of which in that of Sind has rendered the plains bordering on the Indus a desert, which, were it not for the proximity of certain parts to the river, would be all as barren as the Runn of Kutch, or the great desert on the east, of which the plains of this river form a part; possessing, in the mineralogical character of soil, in their geological relations, and in the nature of the spontaneous vegetation, a complete identity.

The ingredients stated as composing the superficial formation in Sind vary in different points along the river, as to the proportions in which these are found associated. On the immediate coast near the sea, there is an admixture of sand, derived from the proximity to and communication with the ocean. In the upper half of the Delta, the clay predominates: the soil in consequence is stiff and plastic; and, while it

gives stability to the bank greater than that observed in the inferior part of the main river, before this reaches the Delta, is likewise turned to account for the useful purposes of the potter. Passing the Delta branches, which, in the actual state of the river, may be considered as terminating at Seanee, we find the soil composed of a very loose sand, the sandy particles consisting of mica, which occurs as an ingredient in the soil of the country generally, but nowhere in the proportion so large as exhibited in this region.

To the loose nature of this soil there can be little doubt that, as a passive agent, we must attribute the sudden deviations of the Indus, which take place to a wonderful extent in the region of its course where this soil prevails, and where we witness, as in the instances of the Gorah and Buggaur, that during one season the whole of a large body of water may be forced into a channel having a direction at right angles with its former course.

The depth of the superficial formation I could not ascertain. In general, however, this depth diminishes as you proceed to the north, along the bank, until we reach the point near Hilaya, where the subjacent formation outcrops, or appears on the surface, and not only forms the bed, and partly the bank of the river, but is elevated into a chain of low sandstone hills, which runs between Hilaya and Raja-jo-Gote, nearly parallel to the direction of the river, performing the useful office of putting a stop to the frequent changes in the direction of the channel, which is observed in the district immediately below that in which this kind of formation is met with. The rock underlying the alluvial soil, and which is first seen near the river at Hilaya, consists of a clayey sandstone, being very deeply coloured with iron, and presenting those varied hues of red, yellow, and white, which mark the description called the variegated or new red sandstone. In the inferior part of the mass, the rock* is deficient in hardness, and almost assumes the consistence of clay; but towards the summit it passes into a hard sandstone, which assumes a horizontal position, and gives the hills which it forms a tabular shape. This form is altered into the rounded by the action of weathering, by which the inferior softer parts being first removed, the tabular stratum forming the summit loses support, and fractures, slipping down the sides of the hills in large flat masses or slabs, which are sometimes even pushed into the river. Those hills which, by this action, are deprived of the harder tabular summit, always present the rounded or conical top. The most elevated do not exceed two or three hundred feet.

* This rock contains abundance of fossil shells embedded. The superior stratum is perforated by cylindrical cavities, caused by some lithodomus mollusca. In the lower part of the rock, the following genera were collected: Ostrea, Modiola, Fusus, &c.

These hills are of great importance; for besides furnishing stones in a country where such materials are rare, and preventing the continual changes in the course of the river observed elsewhere, the rock contains, embedded or loose, an abundance of iron ore, in the form of brown hematite, from which that useful metal is obtained. I was informed that at Tatta the smelting of this ore was at one time carried on to a considerable extent; but the introduction of British iron from Bombay rendered this enterprise unprofitable, for, from the imperfect process employed, the foreign article undersold that produced in the country, which was, besides, inferior in quality. The undertaking is now abandoned, and the only place near the river where this ore is still reduced is at Karaka, where, however, the process is carried on to a very small extent.

The next feature in the geology of Sind is the calcareous formation, which is first met with nearly opposite the northern extremity of the range just described, and which occupies the left, whereas the sandstone range occupies the right, bank of the Indus. This point is in the latitude of Trikul, or at the southern extreme of the Doab Purguna. The formation presents itself in the form of a chain of low tabular hills, not exceeding eighty feet in height, which nowhere approach so close to the river as the sandstone range opposite, the average distance from the bank being from two to three and a half miles.

The calcareous rock forming these hills assumes a cavernous or honeycomb appearance: it has been said to belong to the shelly limestone variety; but it contains fewer organic remains than the rocks composing the hills* on the western bank, which are of the same composition as those now under notice, and assume the same direction, but do not approach nearer to the river than the distance of fourteen miles. The chain on the east of the river is called Gunjah. On the tabular summit of one of them the capital of Sind, with its citadel, is built. Such are the rock formations which are met with in Sind between Hyderabad and the sea. It will be seen, from a consideration of the nature of the soil, that this is not naturally fertile, but that Sind owes its superior productiveness rather to the water of the Indus than to the soil of the country.

Of the various grains produced in the country, I have furnished a list in the Appendix: all of these, in quality, are greatly inferior to that which the same kinds grown in India possess, and the return, except in one, viz. rice, is also greatly inferior. The result of my inquiries as to

* One of these, called Sattar, from the seven summits it presents, is the most remarkable object seen in approaching Hyderabad, and indicates to the boatmen their proximity to the city, when it is sighted.

the amount of return for the different sorts of grain may be stated as follows :—

Rice	60 to 100	fold.
Bajree	20	„
Jowaree	20	„
Barley	15	„
Moong	5	„
Wheat	15	„

The appearance of the country on the banks of the Indus, from the mouth of the river to Hilaya, is entirely destitute of beauty. An unbounded flat, clothed with stunted vegetation, constitutes the landscape. On reaching Hilaya, the appearance of the chain of low hills, observed on the right bank of the river, between this point and Raja-jo-Gote, interrupts the monotony of the plain, and gives to the scenery of this part of the river's bank a character approaching to pleasing. Passing this region, however, the face of the country resumes the same fatiguing monotony observed in the lower Delta; for though, on the left bank, and along the northern part of the section of Sahoo, there occur the low calcareous hills which form the chain called Gunjah, these, from their stiff and formal outline, and their bare and arid appearance, add no beauty to the scenery.

The obstacles which the river Indus offers to navigation may be considered under two heads,—1*st*, the difficulties met with at the entrance, and in the branches of the Delta; 2*nd*, those presented by the main stream. The usual, indeed the only line by which the Indus is at present navigated is, as already stated, by the collateral branch, the Hujamree, which, as far as the grain port, offers no obstacles to vessels of thirty or forty tons. But beyond this, no sea-going craft can penetrate ; and the river, having at certain points between Baree Gorah and the main stream no greater depth during the dry season than two feet and a half, no vessel of any description, exceeding this very moderate draft, can pass by this line.

Another serious difficulty in the navigation of this branch has been stated by Captain Burnes to consist in the liability of the small vessels which navigate it to ground on the flat mudbanks, which are so soft that the boats sink deeply into them, and, before the return of tide, become so firmly fixed that they cannot be extricated, and are, in consequence, destroyed.

In the principal mouth of the river, the difficulties are met with in the approach; for within the bar the depth of water is sufficient for all the purposes of a useful navigation. The approach, however, presents serious obstacles to this passage ever becoming one which will be frequented by merchant craft; for though it has been found that at the

top of high tide a depth of nine feet can be obtained, yet the channel leading to this mouth is narrow and intricate, and beset on all sides by shoals. These circumstances, with the liability to frequent strong winds which blow on this coast, and a knowledge that, by a fall of seven feet, a vessel must remain in a channel which at one time of tide (supposing she did not enter at once) will leave only two feet water, will render this access always unsafe at least to ordinary navigators.

These difficulties we find have led to the complete abandonment of this entrance by the Native vessels frequenting the river; and the practice of the Natives in such matters, guided as they are by experience, should not be overlooked.

For the purposes of Government, however, a knowledge of the existence of such a channel, capable of admitting a vessel drawing seven feet, to enter the Indus, is a fact of great importance; and, for the conveyance of heavy military stores, when craft can be built* on any principle capable of adapting them to the nature of the obstacles to be encountered, and when the direction of these can be placed under skilful and scientific officers, nothing short of physical impossibilities could deprive the public of the use of the river for such purposes. But the private merchant does not possess these resources.

The obstacles which are encountered in the main river are principally confined to the portion which extends between the efflux of the Hujamree and the latitude of Hilaya, situated at a short distance above Tatta. Here the current, on an average, runs at the rate of four miles per hour, and in these points, where the channel suddenly contracts, the current acquires a still greater rapidity. The slipping down of the bank is also dangerous, from the liability of the boats being sunk in the event of the mass falling upon them, and by their fallacious nature rendering it unsafe for trackers to proceed along them, and quite out of the question to employ horses or camels for this purpose. The frequent shoals, and uncertain situation of the channel, must also be added to the difficulties which the navigator must encounter in this part of the Indus, in consequence of which, his boat is constantly grounding; and in case the craft be heavily laden, or the crew unskilful, the banks or shoals quickly gather on all sides, and the vessel, if not the cargo, may be lost.

* The doondee, which is the only kind of vessel used on the lower part of the Indus, would appear to an unprofessional observer to be but a slight improvement on the primitive raft. All the ingenuity displayed in its construction is directed to a very humble object,—that of saving the craft from inevitable destruction in case of grounding. If we compare this clumsy, unwieldy barge with the "sharp, well-built lateen vessels of fifty or eighty tons, drawing five to nine feet," which navigate the Euphrates, or with the varied forms and sizes of the country boats seen on the Ganges, the inference is inevitable, that the facilities which these rivers offer to navigation far surpass those of the Indus.

Such difficulties have caused the merchants of the country to abandon the line of the Indus, and to transport their goods by the land routes. For this purpose, all vessels with imports, either for the consumption of the country or for transit, carry their cargoes, not to the port of the river (which, in general, they are obliged to visit before returning home, to take in grain), but to Kurachee, from which port the goods are conveyed on camels to Tatta, Jerruk, Hyderabad, and Shikarpoor. Another portion of the imports is introduced by Lukput, or from Bhownuggur, across the Runn of Kutch. Such a complicated transaction would have been avoided, had the river presented the same facilities or advantages that are possessed by the land routes; for in that case, instead of arriving at the grain port empty, the craft visiting Baree Gorah would have only to carry the imports to that depôt, where a simple transfer would be effected, and there would be no necessity for the vessel proceeding in the first instance, as is now the practice, to Kurachee. A similar operation is observed with regard to the grain exported from Upper Sind. This is not brought down the river to the shipping port which forms the export depôt for the grain of the Delta, but when the river craft reach the town of Jerruk, situated near the point below which they wish to avoid the navigation, the grain is taken out of the doondees, and carried overland on camels to Kurachee, which thus forms the export depôt for the grain of Upper Sind.

These facts will justify the opinion already stated by others, that in the actual state of this river, and under the present circumstances of commerce, as it exists in these countries, a portage will be found the most profitable mode of transport between the seaport and that portion of the river situated beyond the point where the difficulties to navigation are met with. For such a portage, Sind, particularly the lower part of the country, presents unusual facilities. The extensive plains which constitute the whole face of the country, and are covered with a saline vegetation, are useless for agriculture; but form extensive nurseries for rearing vast herds of camels. The firm and level surface of the soil, also, renders travelling over this country very expeditious and easy for this animal. The time occupied by a camel to travel from Kurachee to Hyderabad does not exceed four days; the period required for the passage of a common doondee, such as those used at present in the navigation of the river from Baree Gorah to Hyderabad, is seldom less than fifteen days, during the season when the northerly winds prevail, which is from the month of October till March. But when a boat is laden to the depth of two feet six inches (the average draft being eighteen inches), the passage between the same points may occupy a period of thirty-nine days, as was the case with the boat which conveyed the coal for the *Indus* steamer from the port of the river to the capital.

When time has been given to enable practical men to understand fully the nature of the obstacles, and to appreciate accurately the amount of those actions by which the inconvenience presented by the Indus to its navigation are produced, and when commerce in the countries to which the Indus must be considered only as an avenue has been created,* and advanced to the extent to justify the expenditure of resources which a civilized community is powerful to apply, then we may see the obstructions of this river yielding to the efforts of ingenuity and science, as we witness those of the Ganges give way to the application of similar means ; but for the present, the wary trader will be content to calculate by which of the routes, by land or by water (if both are open to him), he can, with the smallest risk and expense, convey his goods to the market. If the British merchant be confined to that by water, the Native trader will possess an advantage in the transport of commodities, which may prove very discouraging to the former.

It is the general impression, that the rulers of Sind, whose opposition to the navigation of this river was believed to be the only obstacle which deprived the trader of the advantages of this channel, have, by the same policy, caused the depressed state in which the commerce of the country at present exists ; and it has, under this impression, been considered necessary, in calculating the advantages likely to be derived from opening the navigation of the Indus, to overlook entirely those which a more frequent intercourse with that province holds out the prospect of calling forth. Sind, however, will be found entitled to more consideration in this question than those who have thought most on the subject are inclined to bestow. The charge of barbarism, on this account, has been heaped on the Talpoors with unsparing hand.

But has it been maturely considered how far the depressed state of commerce in Sind may be attributable, partly, to the same general causes which have been attended with similar effects in other countries? If the Ameers of Sind are so inimical to commerce, why have they not interfered with the transit which now takes places, and has never been interrupted, through their territories, by the land routes ; or with that active trade by which the inhabitants of the Coasts of Mukran and Kutch, as well as Kattywar, and even some parts of Arabia, indebted for a yearly supply of grain, which Sind furnishes ? How has their country afforded a passage for the opium, which the traders in that commodity prefer to the line by the territories of the British ? Are

* The establishment of an annual fair in some of the large commercial towns of Sind,—Tatta or Shikarpoor for instance,—would do more towards reviving commerce in the countries between the Indus and the Euphrates than even the opening of the navigation of the former river. The advantages of such establishment, so numerous and so well known among the Russians, cannot escape those interested in the advance of commerce in this country.

the Ameers to blame, if the manufactures of their country have been ruined, when we find that in the article of nitre, for instance, the supplies, which once employed the industry of their subjects, are now derived by the former consumers from another quarter? The manufactures in cloth (Loongees), which formerly were so prosperous at Tatta, have fallen, not through the barbarous policy of the Ameers, but by the change in the state of society in India, and in those countries whose princes and nobles were the principal purchasers of such luxuries. Finally, has not the transit commerce suffered more from the state of anarchy into which the countries which gave rise to that trade have, for a long series of years, been plunged, than from any attempts on the part of the rulers of Sind? The deterioration of the Indus, by which its navigation has been so much obstructed, has been caused by no fault of theirs. The vexatious policy to which they have had recourse, and to which they owe much of the unfavourable opinions generally entertained towards them, is one which a weak State could alone pursue towards a power so gigantic as their neighbours are. This policy has been to avoid intercourse; and whether it was wise or not, they still enjoy their national independence.

The personal characters of the individuals who at present rule Sind are certainly not such as to justify the harsh opinions which have been published regarding their predecessors.

The people of Sind have been also much decried; but the charge has been too indiscriminately brought forward against the whole population. The large masses of the indigenous population are particularly industrious, whether in the occupation of agriculture, or the manufactures. The merchants of Sind are active and intelligent, well protected, though heavily taxed, by the Government, but not so much so as to prevent foreign traders to leave their native country and reside under the rule of the Ameers of Sind. Compared to any State between the Indus and Euphrates, Sind may be pronounced a country considerably advanced in civilization: the Government, though severe, is vigilant, and well ordered; too sensible of its own interests to ruin either the commerce or agriculture of the country. The people are orderly and obedient; and the laws are respected. Such, at least, is the impression which I have formed on these subjects, during a residence in the country too short to allow me to expect that much confidence can be placed in my opinions on questions of such a nature.

Before concluding these remarks on the commerce of this country, I would allude to one or two articles which may become important in the traffic by the Indus. The pastoral tribes which occupy the vast extent of Beloochistan and the Afghan States have few articles to give in return for the commodities produced by more civilized countries.

Among these returns, the wool of their sheep (the Doomba) will be the most important, as it is the most abundant. The wool which I have brought down might be submitted to qualified persons, to ascertain how far it will afford a profitable return for the merchant. The shawl wool from Kashmere is also procurable at Shikarpoor; but I was informed, when inquiring on this subject, that a twelvemonth's advice in advance would be required before any large supply could be brought from the countries from which the article is derived.

It may be important also to know that mules, possessing fully all the qualities which render this animal so useful, are bred in Sind, where the ass attains the development which it is known to enjoy within a very limited geographical distribution. These animals at present, from the circumstance that only a limited number are bred, there being no demand, are at present high priced; but if these ever can become an article of commerce, the Isle of France may derive the supply from Sind for which she is now tributary to the distant Brazils.

The natural productions of Sind, from my short stay in the country, received little attention. Of the zoology of the river, I made but a scanty collection, confined principally to the species of fish used by the inhabitants for food, which I deemed would on that account be interesting to Government.

PART II.

Having thus attempted to convey a general idea of the river, and of the physical aspect of the country immediately bordering on it, I shall now proceed to describe more minutely the sections into which the Sindians divide the main trunk and the collateral branch, the Hujamree, within the limits to which my observations refer.

These local divisions have been entirely disregarded by those whose descriptions of this river I have had the opportunity of consulting, not because these authors were unaware that such local distinctions existed, but probably for the reason that they conceived the subject to be of so little importance, that any notice of these sections, from their great multiplicity, would only tend to create confusion. From this opinion, however, I entirely differ. My inquiry into the subject of these local divisions has convinced me that they merit attention, and that the distinctions which obtain among the Natives, in reference to this point, are philosophically grounded, and will be found practically useful. It is, I think, by our not paying sufficient attention to the subject,—by not discriminating the necessity that has led the Natives to adopt such a practice, or by not understanding the principle which has been followed in separating the river into distinct sections, and of distinguishing each of these by appropriate appellations,—that we must attribute much of the intricacy which still opposes a comprehension of the general character and features of the river system of the Indus. Besides, by being unaware of the value of the terms applied to these local divisions, so universally employed among the Natives, we are apt to mistake these as denoting distinct branches. Thus the Seanee or Sehan has been described as flowing into the Hujamree at Vikkur; whereas the Seanee and Hujamree do not possess, with regard to each other, the relation of two separate branches, but are mere local appellations, applied to different portions of the same branch, between which the distinction is arbitrary,—a matter of convention among the inhabitants.

In talking of the Indus in general, the Sindians employ the term Durya,—following in this respect the practice of the inhabitants of most countries through whose territories one large river flows, which, being to them an unique object of interest and attention, requires no more than a general appellative to distinguish it. But when they wish to indicate a precise spot on the banks, such as the site of a village, the name of the section on which the village stands is invariably given.

The terms employed to designate these sections are derived--1*st*,

from some physical peculiarity (natural or artificial), or from the name of the chief village situated on the bank; 2*nd*, from some tradition referring to the locality, or from the principal tribe which occupies the district through which the portion of the river flows.

Examples of the first we meet with in *Sahoo*, *Bunna*, and *Seanee*: the term Sahoo meaning good, because in the portion of the river so designated the banks are composed of firmer materials, and the stream less liable to vary, than in the sections immediately below; the second term (Bunna) is derived from the artificial dykes thrown up parallel with the bank, to prevent inundation; and the third (Seanee) from a village so called, situated at the point where the river first takes this sectional appellation.

As examples of the second order, I may mention *Poput* and *Moograh*: the first is derived from a tradition that in ancient times a parrot used to be sacrificed* by the boatmen on entering this division, of which the navigation is the most perplexing; and Moograh from a Belooch clan that occupies the banks.

In order to exhibit these divisions the more clearly, I have thought it advisable to prepare a map, in which the sections are separately delineated. This, I hope, will demonstrate the utility of discriminating between terms applied to a section, and those by which the branches are distinguished,—the one being a natural, the other an artificial or arbitrary distinction; nor can we hope to render a subject, naturally complicated, intelligible, by neglecting distinctions which obtain so extensively, and must be of long standing among the Natives of the country, and to which they refer so frequently in all their descriptions.

Table showing these Sections.

Name of Section.	Limits.	Derivation of the Name.
Chanah.....	From confluence of the Punjnud to Jaffer Shah-jo-Gote, near Hyderabad.	From a Belooch tribe.
Sahoo	From Jaffer Shah-jo-Gote to Hilaya, or to the former efflux of Buggaur.	From the word signifying good.
Poput	From Buggaur to efflux of Mootnee.....	From a tradition.
Wanyanee.....	From the latter point to the old efflux of Gorah.	Unknown.
Minejo	From the latter point to the sea	Ditto.
Seanee	From point of separation from Sata to the village of Jameanee.	From the principal village on this part of the river.
Bunna	From the latter to Baree Gorah	From the bunds that are erected along the bank.
Hujamree proper.	From Baree Gorah to the sea	From a tradition regarding a barber.

* For a similar custom among the Chinese, see "Barrow's Travels."

It is my intention to describe merely the sections of the *Hujamree*,—those of the main stream,—through which I have passed.

From this section the important branch of the Hujamree takes its name. In the actual state of the river, and in a commercial point of view, the Hujamree is the most interesting of the embouchures of the Indus, affording the only access which is considered safe for Native sea-going craft to penetrate as far as the grain port (Baree Gorah), situated on this branch, at the distance of twenty-four miles from its mouth. Thus the Hujamree affords egress to nearly two-thirds of the grain exported from Sind, which used formerly to find exit by the branch on which stands Shahbunder, formerly the chief export depôt on the river.

The stream through this section follows a more winding course than in any other division, except the one immediately above (the Bunna). In direct distance the extreme limits of this division (Baree Gorah and the sea) are separated by a space of fourteen miles, but the windings occupy a length of from twenty-four to twenty-eight. The banks, particularly on the lower part, near the sea, are very low, the water at high tide, especially at the springs, reaching to within two feet of the top. The ocean tide of course prevails throughout the whole section, rising from seven to nine feet at the mouth, and from three to four and a half at Baree Gorah, at which point the current caused by the flood tide is confined to the lower depth of the body of water; so that the surface current continues to flow downwards, though the level of the surface, oscillating to the extent above stated, indicates the tidal influence. In consequence of this fact, vessels lying at the port do not swing to the changes of tide.

The breadth of the river within this section was found to be, at one extremity, near the sea, 500 yards, and at the other, opposite Baree Gorah, 100 yards. The latter of these measurements was ascertained trigonometrically by Mr. Wood, the former by means of a graduated line, stretched across the bed from bank to bank. The breadth at Baree Gorah is not only the lesser of the two now stated, but is the minimum breadth of this section of the Hujamree.

The depth of water in this section, at the principal places along its course, we found to be as follows :—

At the entrance	9	feet at low tide.
Opposite village of Ketto	15	„ „
Ditto ditto of Humbus	9	„ „
Ditto ditto of Joah	24	feet at half flood.
Ditto Baree Gorah	24	„ „

The extreme depths which we experienced in the steamer along this section were thirty-six feet maximum, nine feet minimum; and the

velocity of the current, during the flood one mile, and one foot per hour, during the ebb one mile, and two feet in the same space of time.

The navigation of this section for vessels of small burden is as easy as most river navigation can be expected to be. It is at present the only branch of the river by which sea vessels are in the practice of proceeding so far as twenty-eight miles from the sea. At the period of our visit, it was believed to be the only channel by which it was possible for a sea-going vessel to arrive at the main stream of the Indus; but since our attempt, the observations of Lieutenant Pottinger and Lieutenant Carless have shown that the principal mouth (the Minejo) affords a channel by which, though much more difficult, it is physically possible for a vessel drawing eight feet to enter. The numerous disadvantages, however, which this channel presents, causes it to be at present totally abandoned by vessels trading to this part of the river; and the fact that the shipping port has never been situated on that branch which gives outlet to the great body of the water, but, on the contrary, always on one or other of the collateral branches, establishes an analogy between the Ganges and Indus in this respect, and shows, besides, that the character of this river, whatever local alterations take place, undergoes no change.

The deep channel of the Hujamree, within the entrance, is easily followed, by observing the appearance of the banks; for in this section the deep channel invariably lies close on the steep bank, so that when the bank passes from the character of steep to shelving, the vessel must stand over to the opposite side, where the channel will be found near the perpendicular bank. But where the banks on both sides become shelving, the deepest water will be found to occupy the middle of the bed. Had this important character been preserved by the Indus in the upper part of its course, the navigation of the river would be much facilitated.

Below the village of Humbus, the water of the river is not considered wholesome, on account of the admixture of the salt water from the sea: the extent to which this admixture takes place is observable in the nature of the plants which grow on the banks, for the *Ogeceras* (called by the Natives Chawer), the *Mangrove*, and *Sonneratia* (plants which flourish only on the borders of saline waters) continue to prevail as far as the village last named.

But the most striking physical peculiarity of the section is the occurrence of an annual inundation, which extends over a strip (probably along the whole coast of Sind, whenever the fresh and salt waters meet) to the breadth of five or six miles in direct distance from the line of coast. The water, which in the higher parts of the river merely elevates its level for a few feet, but never surmounts the bank, or floods the

country, is here elevated above the low banks of this limited strip, and produces a most important effect, not only on the vegetation of the country, but influences materially the whole economy of the inhabitants of the region, contrasted with those who occupy the more elevated parts.

The phenomenon of general inundation, which is confined to this latitude, produces the extensive pasturage which clothes the belt bordering on the sea, and feeds the large herds of cattle, principally buffaloes,* which disappear as soon as you reach the country where the height of the banks prevents the occurrence of a general overflow. The habitations of the Jutts, and other Belooch tribes that occupy this belt, are for the most part temporary, and during the period of inundation they remove to spots where the level is artificially raised: here the people are pastoral in their occupation, and here the artificial cuts or canals, which in the higher country are necessary to distribute the waters of the swollen river, are not required. The only canals seen in this region are natural creek-channels, which keep up communication with the different branches near the sea, and preserve the same level as the ocean. The strip of country subjected to the annual inundation is deprived of the vegetable feature which characterises the rest of Sind. The tamarisk does not grow here, or is very scarce; and where the southern limit of this plant commences, the general inundation ceases to prevail. For the remaining extent of this section, the country is watered by canals, as in all the other districts of Sind, to as far as Hyderabad.

The lowness of the banks which bound the river along this belt of inundation is not the sole cause of the latter phenomenon: the general elevation which the waters of the sea along the coast must undergo, during the prevalence of the south-west mohsoon, in the season corresponding to that in which the swell of the river takes place, has great influence in producing this effect.

The rice grown on the soil subjected to the overflow of the mingled

* Flocks of sheep are reared on this part of the Delta. The variety is not indigenous to this district of the country, but has been introduced from the mountains to the westward, where this race is bred. The flocks are not large, but the race looks casty, and the wool, though not to be compared to that of the doomba for fineness and softness of texture, is, as well as the mutton, equal, if not superior, to that produced by the best Muratha breeds. I was offered the selection of the flocks which I examined, for one rupee per head. Blankets are manufactured of their wool.

Honey should be mentioned as one of the natural productions of this low strip of the Hujamree. It is produced by bees, which feed on, and attach their combs to, the maritime shrubs which I have mentioned, particularly the *Ogeceras*. The honey is much superior to any procurable in the west of India, being solid, perfectly crystallized, white, and well flavoured. No particular care is taken in rearing the bees.

waters of the sea and the river is of inferior quality, and called by the Natives Garah, a variety closely resembling the sort known in this part of India as the Khara Bhat, which is produced in similar situations. The grass which forms the pasture is also of coarse quality, and grows close, but not high. Here no cultivation takes place in the dry season, and no other grain is produced in this whole district than the coarse rice I have mentioned. The climate of this low strip differs in some degree from that of the rest of Sind. It is more damp, arising from its maritime situation; and, from its geographical site, more frequent showers are experienced during the rainy monsoon, from the south, than in the regions to the north.

The races which form the population of the lower part of the Hujamree section are the Jutt and Kurmatee Belooch clans. In the northern part, the population is more mixed, consisting of a variety of Belooch clans, such as the Lugaree and Lasharee, together with Sindee tribes, and Hindoos of the common Lohana and Banian castes; also a few small colonies of Sikhs. The occupation of the latter people is confined to the manufacture of mats from the Panna grass, from the long ligneous root of the tamarisk, and from other coarse tall grasses, which grow in the northern district of this section. This kind of manufacture is very profitable and important, for the matting is applied by the inhabitants to a variety of purposes, such as in the construction of their houses, and many domestic uses. A large portion is also exported, and is used by the vessels frequenting the port for the stowage of grain, which is carried away in bulk.

The manufacture of pottery is another important object of industry, followed chiefly by Sindee tribes, and, from the northern part of this district, articles of this manufacture are sent all over the country. The soil of the Delta, consisting of a purer clay, and possessing the character of being more tenacious than that of the northern portion of Sind (where the clay is mixed with a large proportion of calcareous matter, and becomes a marl), is very well suited to this application. The article of this kind most commonly manufactured and exported is the circular disk, about two feet in diameter, used as a substitute for grinding stones. The occupations of the other tribes are confined to husbandry.

I shall conclude the description of this section of the Hujamree by the enumeration of the chief places met with, along the bank of the river.

On entering the mouth of the Hujamree, the first collection of huts entitled to the name of Raj is called *Moonard*. The term is derived from the word signifying a minaret; but no object of this kind was observed by us in passing the place, though the erection of something of the kind in such a situation would render great service to navigators entering the river at this point; for the lowness of the coast renders it difficult, even

in the clearest weather, to recognize the point where the mouth is situated, this spot being now indicated by the appearance of interruption which is observed in the line of breakers, caused by the intersection of the fair channel.

Moonara consists of about thirty huts, constructed of straw. It is situated on the right bank, at the distance of a mile from the river, and half-way between the Hujamree branch and Recheb Creek. At this place resides the officer of the Sind Government who collects the duty levied on foreign boats, from Kutch and the Kattywar Coasts, which frequent the numerous creeks on the western shores of the Delta, for firewood. It is scarcely necessary to observe that the wood taken by these vessels is produced by maritime shrubs, the larger kind being applied to some purposes of ship-building, the rest as fuel. The amount of the tax is Rs. 5½ (Tatta currency) for each boat, of whatever burden, and the number of boats employed in this trade belonging to Mandvee alone is, I was informed, from seventy-five to a hundred. The craft are generally small, but each boat performs two or three trips annually. One of the varieties of wood from these creeks, the Tewur *(Sonneratia acida)*, we found, in the steamer, to answer better for the purpose of fuel, as a substitute for coal, than any other kind which we tried; indeed so well, that for river navigation, in which a vessel must come to always at sunset, this kind of fuel does not appear inferior to coal. The supply, it is important to notice, will be found inexhaustible, for the localities which produce these shrubs are very extensive, and enormous supplies have been drawn from the coasts of Sind, perhaps for centuries, without any sensible diminution. Further, the desertion of the whole north-western part of the Delta by the fresh water of the Indus tends to increase the domains occupied by these plants, which consist principally of the following species: the Tewur (before mentioned), the Chawer *(Ogeceras majus)*, and two species of Kandel *(Rhizophora)*. These kinds are common to the shores of India. This fact is the more important, as wood is scarce in all other parts of Sind; and the Babool, which is one of the most common, as well as the best adapted for the purposes required for fuel by steamers, would furnish only a very limited supply.

Kettoo.—Situated on the left bank, and at the distance of one mile from the river, is the next Raj. It is built on an artificial elevation, in consequence of which the inhabitants are not obliged to shift their habitations during the inundation; and from this cause, also, it is the first point on the land to be seen, on approaching this part of the coast. The huts are about forty in number, but the place itself merits no further notice.

The Rajes of *Humbus* and *Joah* are situated on the right bank, and close to the river, the first at a distance of nine miles direct from the sea,

and eleven by the winding of the stream. Joah is distant from the first, by the winding of the stream, four miles and a half. At the latter of these places, the largest size of Native boats, which frequent this branch for grain, are obliged to remain, and to this point their cargoes are brought down in doondees. Joah, therefore, may be considered the first shipping port on the Hujamree. The vessels which prosecute the passage up the river no further than this point are generally of 60 to 80 kurwars, and they remain here,* not because the depth of water is insufficient to carry them to Baree Gorah, but on account of the danger of grounding, which, with smaller vessels, would be an accident of slight importance, but with the larger craft, when deeply laden, would endanger their loss, by the vessels sinking too deep in the mud, when left by the tide, to be floated again on the return of the flood. I have mentioned before, that below Humbus the water of the river is scarcely potable.

At the small Raj of *Mamooda-jo-Gote*, inhabited by two clans of Beloochees, the Lugaree and Lesharee, a natural canal or cut sets off from the Hujamree, by which boats can communicate with the Recheb, and thence to the west as far as Kurachee. This communication is kept up by means of the channel creeks, which are supplied with water, not by the river, but from the sea, and are consequently quite dry at low tide. In order to reach Darajah from Hyderabad, boats are obliged now to pursue this circuitous route, which brings them far to the south and east of their destination before they reach the mouth of this channel. Formerly, communication was kept up between these points (Hyderabad and Darajah) by the Buggaur, which arm of the Indus is now entirely deserted by the river.

The last place we come to in this section is *Baree Gorah*, the most important of all. The place has been called in Captain Burnes' map *Vikkur*, but this name belongs to a small village situated two miles from Baree Gorah, at a distance from the bank, and quite distinct from the latter village. Baree Gorah was removed to its present site about nine or ten years ago, from the bank of the Gorah branch, now no longer in existence, which, up to that time, was the principal channel by which boats passed into the main river. It was open so late as the period of Captain Burnes' visit, for his party passed through it when on the Mission to Lahore.

By the observation of Lieutenant Carless, Baree Gorah is situated in lat. 24° 13′ 20″ N., long. 67° 36′ E. Most of the houses composing the village are built more substantially than those of the Raj met with below.

* A boat of 80 kurwars burthen cannot descend from Baree Gorah. In loading, she takes in 60 kurwars at the latter place, then drops down to Humbus or Joah, where the remaining 20 kurwars are shipped.

Clay is used in their construction, and the general form of the huts resembles the style of building in fashion among the Arabs.

This village contains 250 huts, and 1,000 inhabitants, composed of Hindoos of the Lohana, Bhatia, and Sonar or goldsmith castes, with Mohanas (boatmen), and other Musulman tribes, who follow the occupations of carpenters, potters, and kullals.

The customs collected here from the shipping frequenting the port is transmitted to Shahbunder, where the general accounts regarding this item of the revenue appear still to be kept. The farmer of the customs of this port pays annually the sum of Rs. 52,000, but as part of this amount is shared by Ali Moorad, the Meerpoor Ameer, it is probable that the farm extends to some of the creeks to the eastward of the great mouth (Minejo), by which small quantities of grain are likewise exported. The custom dues paid by all vessels loading here amount to Rs. 1-4-0 (Tatta currency) per kurwar. A return of the number of vessels annually frequenting this depôt, with a statement of the ports to which they belong, &c. will be found in the Appendix to this paper. The territory along this section of the river, called the Purguna of Kakrala, is in the possession of Meer Nusseer Khan. The land attached to the port itself has an area of two square kos, and is said to yield about 700 kurwars of grain, for which the Government derive a revenue of from 200 to 250 kurwars.

Bunna and Seanee sections follow that of Hujamree. The former (Bunna) has its limits at Baree Gorah, and the small village of Jameanee. The Seanee extends from the latter village to the point where this collateral branch of the Hujamree separates from the main trunk. At this point is placed the village of Seanee, from which the corresponding section derives its name. The Bunna, as I have before noticed, is so called in consequence of the practice which prevails here, as well as in a part of the Seanee, of raising up embankments or dykes upon the top of the natural bank of the river, at the distance of six yards from the margin, and running in a direction parallel to it. These dykes are generally three feet high, and the use of them is to prevent the overflooding of the country during the swell of the river.

The banks, which, from the point of junction with the sea, gradually increase in height, attain in these sections the elevation of five feet above the surface of the river at high tide. This height of bank, however, is not sufficient to secure the fields from the disadvantage of a general overflow, which is apt to take place during the swell of the Indus, particularly when, by reason of the spring tides, or the prevalence of high winds on the coast, the waters of the river are accumulated, and undergo an unusual elevation. By this contrivance, the supply of water is kept completely under the control of the husbandman, who,

by opening a passage in the bund, can at pleasure irrigate his field. The inhabitants of the district are likewise much benefitted personally by the same cause; for they are not obliged to shift their habitations, like the people of the district contiguous to the sea. In fine, the productiveness of the country bordering on these sections is, in consequence of the same cause, much increased, compared to that on the section below; for the rice can be supplied at pleasure with any quantity of water necessary for its growth, and at the times when such supply is required; but the crops here never suffer from having too much, which accident occurs in the lower country.

Another peculiarity which marks these sections (Bunna and Seanee) of the river will be found in the prevalence of a plant, whose services are of the utmost importance to the people, and whose geographical limits of growth are most clearly defined. I allude to the Panna grass of the Sindians, the *Typha elephantina* of botanists. After passing the northern limit of the section, scarcely a single individual of this interesting species is to be found; and certainly, after reaching this point of the river, it is never met with growing in the compact and gregarious manner which marks the habit of the plant along the Seanee and Bunna. The same remark may be made of the southern or lower limit; for till you enter the most southerly of the above sections, the plant is also scarce. On the banks of the Bunna and Seanee it overgrows the whole surface for a considerable distance from the margin, until its extension inland from the river is purposely checked by the cultivator, over whose fields it would spread, and become a weed. Confined, however, to a belt of a certain breadth along the bank, the Panna, by means of its long, tortuous, and strong roots, sinking to the depth of nine feet from the surface, into the soil, which it thus holds together, endows the bank with a degree of firmness that prevents the perpetual falling in, which forms so inconvenient a feature of the banks in the northern sections of the Indus immediately adjoining these.

In appearance, the Panna, with its long, sword-like leaf, has some resemblance to the flag. The roots, or rather the underground stems, in penetrating into the soil, take a very crooked course, and, at short intervals, throw off lateral branches, which extend to a great distance horizontally, and push up fresh shoots, which appear on the surface springing up like independent plants. In this way one individual may occupy an area of several roods.

Below the limit of this section, to the south, the proportion of salt water mixed with that of the river may be the cause of this plant not growing in that situation; but its services would not be of any importance there, for the banks are so low that the weight of earth above the line of the action of the water is insignificant; so that the accident of falling in is

not of frequent occurrence. The banks in this region undergo those slow, gradual changes, which are usually produced by the action of running water on its borders. It is far otherwise with the sections of Poput and Moograh, where the phenomenon of the falling down of the bank is witnessed in its extreme degree, and produces the greatest inconvenience to the navigation of the river, by causing those very frequent changes in the situation of the channel, and even in the direction of the course of the main body of the water, that has conferred a character so disadvantageous to this river as a channel of intercourse, and has led, no doubt, to the present abandonment of this line of communication, within certain limits, by the Native merchants of the country. Here, therefore, an attempt to encourage the growth of this invaluable species might form one of a series of contrivances, by which human efforts might still restore this interesting stream to its former subserviency to human industry.

The Natives of the district where this plant grows are well aware of the services rendered by it; for in collecting the leaves, which they manufacture into matting, they cut the plant close to the soil, but do not attempt to disturb the roots, the uses of which they know how to appreciate. The dried leaves, from their cellular structure, contain much air, and this property is taken advantage of by the Native, who ties them into bundles, which serve as bladders, to support him when swimming across the river. The leaves are likewise used as floats by the fishermen for their nets.

From this digression, I shall return to the description of the Bunna and Seanee sections.

These sections form the continuation of the Hujamree, until the branch terminates, by meeting the main stream, which, at that point, takes the general name of Sata, and the sectional one of Poput. These two sections are not put down in Captain Burnes' map, so that they may be considered a new feature in the geography of the Indus. Their combined length of course, to the point of separation from the great river, is, by the winding of the stream, twenty-nine miles, and the direct distance between their limits thirteen miles.

At the commencement of the Bunna section, the breadth of the river is one hundred yards. At the termination of the Seanee it amounts to forty yards, at which point a dry flat is accumulating from the extreme angle of the right bank, which threatens to stretch entirely across the mouth, and may thus intercept the communication which now exists between the main river and the sea by this line.

The mean depth is, for Bunna 8½ feet, for Seanee 11¾ feet; the extreme depths are, for Bunna, 24 feet maximum, 3 feet minimum; and for Seanee, 27 feet maximum, and 2½ feet minimum.

The banks bordering on these sections appear better peopled. The number of small villages amounted to twenty-two, and the aggregate number of huts which compose these is estimated at 874; so that, allowing four persons for each dwelling, the population on the immediate bank of the river in this line will be 3,496. The population consists of a great variety of Belooch, Sindee, and Hindoo tribes: among the latter may be classed a few small colonies of Sikhs, who follow the occupation of manufacturing mats, as in the section below. The general occupation of the rest of the people is husbandry. Some few herds of buffaloes are still seen, but these are small in number, and the cattle appear meagre and ill-conditioned, compared to those of the lower Delta.

It was in this part of the river where the steamer met with the difficulty on account of the small depth of water. By these sections, too, the line of communication passes from Shahbunder to Baree Gorah. Boats from the former enter the main stream (which here takes the local name of Poput) by the branch called Mootnee, and proceed to the north, until they reach the point where the Hujamree separates, to pass by Baree Gorah to the sea.

This concludes the account of the sections of the collateral branch.

The others, about to be described, form divisions of the Sata and main trunk. The *Poput*, though the third of the sections into which the main stream is divided by the Natives, between its embouchure and the latitude of Seanee, is the first upon which we entered in our passage to Hyderabad. The section commences at the efflux of the Mootnee to the south, and terminates opposite the villages of Beman-jo-Pooro, at a bend which the river takes in this situation. From personal observation, I can only speak of this section above that point where it gives off the waters of the Hujamree branch. The length of the river between this point of separation and its northern limit is in direct distance nine miles, and by the winding of the river eleven miles. The *Moograh*, which is the section adjoining the Poput on the north, and which, possessing the same character in its physical peculiarities, I shall describe at the same time, has its southern limit at Beman-jo-Pooro, and the northern at the old efflux of Buggaur; or some make the Moograh section extend to Hilaya, a village situated at the south extremity of the Chupper range of hills. This is to be preferred, for the boundary thus defined is more natural and permanent than that of the dried bed of Buggaur.

In a practical, as well as in a scientific point of view, the study of these two sections is of the greatest interest and importance; for it is in this region where occurs the mischief which causes so much vacillation in the course of the river among the subordinate branches in the lower

Delta, near the coast, producing those frequent changes in the channels by which the waters are discharged into the sea, which render the whole navigation of the inferior part of the Indus uncertain and perplexing. Below the limits of these sections, to the south, neither the nature of the soil (which is a stiff clay) nor the velocity of the current are such as to bring about the changes which are witnessed in the course of the river, but which have the relation of secondary effects only, caused by the changes which take place in the region now under consideration. Again, above the limit of these sections to the north, the firmness of the soil through which the river flows, and the existence of a low, but, in this particular, an important range of hills, keeps this unsteady river in its course until it passes into the Moograh section, where the destructive operations commence which make the navigation tedious, and hazardous, if not to life, at least to property, and has induced the prudent Native merchant to abandon this part of the river, and to transport his wares on camels to their destination. All observers who have written on the Indus lately have described the destructive operations to which I allude; but the impression generally prevalent on this subject attributes these as characterising the whole inferior part of the Indus below Hyderabad. This, however, is not the case: the pernicious action is confined to a limited region; and though it indirectly influences portions of the river below the actual site where the mischief occurs, yet, if we would understand the nature and amount of the combined causes that produce these effects, we must direct our observations to the point now under notice; and if ever the commerce of the regions bordering on this great river attain an importance capable of justifying the necessary expenditure of labour, ingenuity, and wealth, in order to improve the channel of communication by this line, it is to this point that operations will be directed. The effects which render the navigation of this part of the river more difficult than the rest, and which superinduce the changes in the inferior subordinate branches, are—1*st*, the numerous sandbanks and shoals; 2*nd*, the frequent alterations in the situation of of the navigable channel; 3*rd*, the total change in the direction of the course of the entire body of water; and 4*th*, the great partial velocity of the current which these causes produce, in particular points, within these limits.

On the other hand, the remote causes which produce these effects may be found in the very loose nature of the soil through which the river flows in these sections, and the great general velocity of the current. The soil of this region, compared to that of the sections above and below our limits, is loose, light, and easily transportable. This difference arises from the smaller quantity of clay which enters into its composition, and the presence in large proportion of a micaceous sand,

the particles of which, when a handfull of the dust is examined, appear in the form of thin shining scales, like minute spangles. This soil appears to occupy a belt which traverses the course of the river, and is bounded to the north by the red sandy clay which forms the river bed in the Sahoo section, and to the south it is terminated by the stiff white clay which is met with in the lower division of the Poput, and on the banks of the branches in the lower Delta. The immediate causes, which connect the remote causes with the effects just stated, consist in the extensive destruction of the banks which is going on, without intermission, along the whole of that part of the river where this loose soil prevails. Such large masses of soil, falling into the river, fill up the navigable channel in one point, and force it to shift to another situation. Depositions of the easily transportable soil, in the form of extensive banks, occupy every situation in the bed, and oppose the general course of the river, causing this to deviate or to divide its waters; and in the sudden bends which attend such deviations, the water is accumulated, and the rapidity of the current increased, in passing the contracted channel, to the rate of five miles and a half per hour. These same causes, acting in an extreme degree, produce the changes in the course of the whole body of water, which has caused the Indus to be so notorious for this character, and which we see exemplified in the desertion of the Gahrah and Buggaur beds, and their subordinate branches, in the actual state of the river.

If we look at the map of the Indus from the sea to Hyderabad, lately forwarded to Government by Lieutenant Wood, it will be observed, that the bed of the stream is comparatively free from banks, from the point at which the river passes the latitude of Hyderabad, until it reaches the section of Moograh. Here, however, the whole bed will be observed to be beset with shoals and dry banks, even much more extensive and numerous, in reality, than the delineation indicates. Here also will be noticed the deserted beds of Buggaur and Gahrah, both evidences of the same kind of action. On passing out of these sections, either into the main trunk, at the lower part of its course, or into the collateral branch of Hujamree, the bed of the river again becomes clear, and the channel comparatively permanent; that is to say, it may undergo slow changes, which produce perceptible effects from year to year, but these changes are not operated from day to day, or from hour to hour, as in the upper part of the Poput, and the whole of the section of Moograh.

By this, I think I have said enough regarding the limited extent of the region in which are observed the phenomena influencing the navigable state of this river in so important a degree.

I shall now proceed to state the difference in the effects of these operations, produced during the swell of the river, and during the season

when the level of the water is low. These operations differ more in intensity or in degree than in kind; for during the swollen state, the larger body of water must increase the velocity with which the current flows. The height of the bank, which in these sections is such as to prevent a general inundation, even when the level of the stream attains its maximum elevation, by opposing the lateral spread of the enlarged volume of water, increases the destructive action of the current on its sides. The incoherent soil tumbles down in large masses, the light micaceous sand is accumulated in heaps, that appear as dry banks in the season when the level is low, but form the bottom of the river during the swell. These react when the river begins to sink, the banks or shoals over which it flowed in the height of the swell gradually equal the level of the sinking stream itself, and by their position oppose a resistance which the river cannot overcome, and, in order to continue its course, must select its channel on one side or the other; and in flowing along the border of the opposing bank, which it cannot carry away *en masse*, is constantly tending to destroy it in a more gradual way, by undermining the basis, and causing the upper portion to slide into the river. This latter action is what is witnessed during the dry season. The banks, not only of the island situated in the middle of the bed, but those of the river, are constantly falling in, in large masses, making a noise resembling the sound of a heavy surf beating on the sea shore. This phenomenon is of such frequent occurrence, that while we were passing in the steamer along these sections, I have counted in the night time, when the range of sound is most extensive, as many as thirteen reports, produced by the precipitation of the bank into the river, in the space of one minute. From personal observation, I am satisfied that the accounts given of the danger likely to occur to boats passing through this part of the river, from the falling of the bank, are by no means exaggerated. At a village where the steamer came to for the night, we had an opportunity of witnessing very closely the destructive effects of this action on the bank itself, on the houses of the village near it, and on the channel of the river. A large part of the bank gave way close to, but ahead of the boat, about the distance of eighty yards. The extent of bank which thus suddenly tumbled into the bed of the river must have measured nearly a hundred feet in breadth from the margin of the bank, and about four times that extent in length. The noise attending its fall resembled that of a vast body of water rushing over a precipice, and the agitation of the river that followed caused the boat to roll as if in a heavy sea. Some huts nearest the bank were also precipitated, and it was with difficulty that some of the property in these was saved.

On the following morning, we found that the part of the river into

which the bank had fallen was converted into a shoal, partly above the water, which, prior to the accident, had a depth of three fathoms; and the steamer, in shoving off, was obliged to make a considerable détour to clear the shoal. When we consider that thirteen reports, produced by similar causes, may be heard from one spot, in the space of one minute, we may obtain some idea of the rapidity and extent of the destructive action in this part of the Indus.

The average breadth of the river within these sections was found to be 660 yards. On account of the numerous dry banks, rising like islands, in its bed, the distance between the banks is much increased, compared to the section immediately above. The depth of water varies; and the deep channel is constantly fluctuating, in such a degree as to render the services of a pilot of little use in the navigation of this part, further than, by a knowledge of the character of the river, he is never unprepared for the most extensive local changes in the channel, or in the course of the stream.

On the Indus in this part we seldom meet with the bark either of the fisherman or of the merchant. The banks are not enlivened with villages, as they are higher up; for the villages that are situated along this line are placed at some distance, and cannot be seen, from the river. The water wheels are very few in number, and the river here appears to be neglected; the country on its borders bearing the aspect of solitude, gloom, and desolation. Though the large town of Tatta, with a population of near 20,000, may be said to be situated on its bank (for it is only four miles distant), no indication of the existence of such a place can be observed on the river. It has no bunder corresponding to its size or commercial importance; no boats near the banks, except those required for the ferry. The merchants of Tatta have abandoned the Indus, and they now use the camel to transport their wares from Kurachee to Shikarpoor and Hyderabad.

Opposite the village of Meeanee, Lieutenant Wood found the river to have the breadth of 960 yards, not including a sandbank or island which divided the stream into two parts, having on one side the breadth of 660, and on the other 300 yards; the island itself measuring 2,390 yards. Sections of soundings were taken at three points within the division of Moograh, which gave for the first point (opposite Meeanee), the maximum of 2¼ fathoms, and minimum of 1 fathom; the mean of the whole number 18 feet.

The second point (opposite efflux of Buggaur), gave maximum 5 fathoms, minimum ½ fathom; mean 12 feet.

The third point, at Kelaun, maximum 6 fathoms, minimum 4 feet; mean 9 feet.

The average velocity of the current within this section was found to

be from three and a half to four miles per hour. The number of villages situated on this line of the river amounts to about twenty-five, and the number of huts to 1,221. The population, calculating four individuals to each dwelling, may be stated at 4,884, exclusive of the town of Tatta.

We next proceed to the *Sahoo* (good), so called by contrast with the portion which we have just described. The circumstances to which it owes this character are,—1*st*, the nature of the soil which forms the bed of the river here; and 2*nd*, the existence of a chain of low hills, which extends from Hilaya to Raja-jo-Gote, on the right bank, and approaches in several places close to the water. On the left bank, and at the northern half of this section, another chain of low, tabular, calcareous hills runs parallel with the course of the river, and, though situated at some distance from the bank, has a beneficial influence, by raising nearer to the surface the harder formations, which support the sandy clay that forms the immediate bed. These latter hills are called Gunjah. On one of them stands the capital, Hyderabad, at the distance of four miles from the river.

The southern chain, on the right bank, goes by the general name of Chupper,* from the term signifying a thief; for there is a tradition that the caverns, still observable in the hills of this range, once served as a retreat for a notorious band of robbers. The hills of this low range never attain a greater height than 400 feet; their general direction is north and south; and the chain, from the point Raja-jo-Gote, where it commences, until its termination at Hilaya, assumes the form of a series of small semicircular ranges, bending towards the river, with the horns projecting close upon, indeed sometimes forming the bank at, four points, viz. near Raja-jo-Gote, at Jerruk, at the Tombs, and at Hilaya. At the latter point, though this low range seems to terminate, it only, in fact, takes a more westerly direction,—leaving the bank of the river, and passing Tatta, it loses itself somewhere in the interior. The geological structure of these hills has been noticed.

As regards the channel of the river, the low chain bordering on the southern half, and the Jebbul Gunjah on the north, have bestowed a character of permanence to the course of the Indus, within the limits of this section, which it does not enjoy lower down. When this section is once entered, no difficulties are experienced in the navigation of the river; and were the whole line from the sea to Hilaya of the same character as the Sahoo, the Indus would never have been so deserted as it now is, and Sind, perhaps, with the regions adjoining it, would have been at this day better known to Europeans than they are at present.

* A district of the same name exists on the west side of the river, which may be derived from these hills.

At the foot of the chain at Hilaya, Mr. Wood observed several pools of water, which occupy the deserted channel of that branch, which once left the river at this point, and passed to the westward of Tatta. This branch has been deserted for the last sixty years. The phenomenon is mentioned by Mr. Crow as having occurred twenty-five years before the period of his residence in Sind. He observes that Tatta was by that occurrence thrown out of the Delta. Ten years ago, an accident of a similar kind occurring to the former western arm of the Indus, the Buggaur, has removed the apex of the Delta itself several miles below the point where it is described to be situated even in the latest published works on Sind.

The banks of the river in this section are bordered by the Shikargahs or hunting forests of the rulers of Sind, so often mentioned by writers on this country, as presenting serious obstacles to the navigation of the Indus, by their proximity to the margin of the banks; and as oppressive to the people, by depriving the inhabitants of so large an area, containing the best soil of the country: disregarding, on the one hand, the fact that difficulties of a much more formidable character occur in the Moograh, where no Shikargahs exist; and on the other, that the soil of Sind is invariably of the same quality throughout the whole country, and is productive or otherwise in proportion to the quantity of water with which it is supplied; so that as long as the canals of irrigation are maintained, as they are at present, in an efficient state, it does not materially affect the interests of the Sindian cultivator what site the Ameers select for their preserves, for there is ample space in Sind both for the fields of the husbandmen and the pleasure grounds of the rulers. Their preserves give a cheerful appearance to the river, contrasted with that which is witnessed in the adjoining section. They are more numerous here than elsewhere along the river, because its vicinity to the residence of the Ameers renders this situation more convenient for their purposes.

The extent which these Shikargahs occupy along both banks of this section may be estimated at thirty-three miles, with an average breadth of a mile and a half. The wood composing these forests is well known to be chiefly the Babool or *Mimosa*, of two species (*Mimosa Arabica* and *Farnesiana*), which here, particularly the former, attain a height which is rarely witnessed in India. The tamarisk also assumes the stature of a tree (twenty feet high), showing in this respect a difference so striking, contrasted with the humble bush as it appears in India, and even in the lower part of Sind, that some have conjectured the taller variety belonged to a distinct species; but I could not discover any specific difference. The direct distance between the site of the village of Hilaya and the landing-place at Hyderabad may be stated at twenty-five miles, and by the windings of the river thirty-three miles.

The mean of eleven measurements (trigonometrical), taken at different points of the section of the river by Mr. Wood, makes the breadth 616 yards. Opposite the landing-place of Hyderabad the breadth of the river was found to be 650 yards, and further below, opposite the village of Trikul, it contracts to 386 yards. Sectional soundings were taken at twelve different points of this division, and gave the following mean depths :—

For 1st point (landing-place) Hyderabad	18	feet.
2nd, above Trikul	9	„
3rd, below Trikul	11	„
4th, between Trikul and village of Saub.	11	„
5th, at Raja-jo-Gote	9	„
6th, above Jerruk	9	„
7th, below Jerruk	14	„
8th, near Bunna	9	„
9th, opposite Punyaree	6	„
10th, near the Tombs	9	„
11th, at New Kuddee	6	„
12th, at Old Kuddee	7	„

The number of the principal villages situated on the section amounts to twenty, and the aggregate number of huts may be estimated at 2,039; giving a population of 8,156, according to the principle followed in the inferior sections. This population is miscellaneous, consisting of a mixture of the usual Hindoo castes, who are employed in agriculture and the manufacture of spirits, as well as in trade with various tribes of Sind and Belooch origin.

The village which deserves particular notice is Jerruk. This is a place of some commercial importance, situated on a platform elevated about fifty or sixty feet above the level of the river, and at the distance of three quarters of a mile from the right bank. The town derives its name from the Sindee clan to which the larger proportion of the inhabitants belong. The houses, 250 in number, are constructed in the same style, and with the same materials, as those of Hyderabad. A commercial intercourse is kept up, on the one hand between this place and Kurachee, by two routes, one direct, the other passing by Tatta, and on the other with Shikarpoor and Kabool,—sending to the latter places the merchandize from India imported by Kurachee, and receiving in return the commodities of the Afghan States, particularly madder, and dried fruits. There exists, also, an active trade between the tribes inhabiting the mountains to the westward, who bring sheep from their pastures, to exchange for the grain, particularly rice, of the plains bordering on the river.

Besides trade, a large proportion of the inhabitants of Jerruk are

engaged in various manufactures, as in turning and lacquer-work, and in the preparation and working of leather. Rice, bajree, sugarcane, hemp, and tobacco, are produced in the plains around the town. The flax is also an object of cultivation, and the fibres of the plant are manufactured into cordage. Fruits, particularly the mango, pomegranate, and a few apples, are produced. Grain is brought in boats from the small villages in the vicinity, which is transported to Kurachee from this place on *camels*. The road to Kurachee, by Tatta, is estimated at fifty miles, that in a direct line the Natives reckon forty miles.

The town, with the Purguna Dubyar, in which it is situated, belongs to Meer Mahomed Khan, and the revenue derived from the territory attached to the town is said to amount to Rs. 1,500 annually. The number of inhabitants is given at 1,300.

The small village of Giddoo Mull-jo-Tundo, situated about four miles from Hyderabad, and close to the river, forms the present bunder or port of the capital, on the Indus. Here the boats belonging to the Ameers are kept,—both those which they employ for their own use on the river, called jumptee, and the common doondees, which they hire out whenever the boats are required. The crews of these boats are not permanently attached to the craft, but are engaged for the trip, and, when the doondees start from this village, are selected from the Mohanas that form a large part of the population.

The village consists of 480 small huts, which contain a population of 1,440, distributed as follows :—

	Houses.	
Banians occupy	15	
Lohanas	85	
	——	100, Hindoo.
Bearers	100	
Mahamans	20	
Puthans	100	
Mohanas	150	
	——	370, Musulman.
Total houses		470

Shoemakers and various mixed tribes occupy 10 houses.

Opposite the latter, on the right bank of the Indus, is situated another considerable village, called Kotree. At this point the great northern and southern roads from Kurachee and Kandahar abut; and at this point is established two ferries (one at the village itself, and the other half a mile below), which keep up the communication between the opposite banks of the river. The nature of the transit by these ferries, and the fares established on them, will be seen in the Appendix. The village is said to contain 600 huts, inhabited principally by Lohanas

and Mohanas. There is also established at Kotree one of the three distilleries which supply the capital and its vicinity with spirituous liquor. The establishment here, however, is small, consisting of only one still, which produces monthly fifteen maunds of the highly rectified aromatic spirit so much admired by the Sindees.

The other two establishments for manufacturing spirits are situated, one on the bank of the Fullailee, and the other at the hamlet of Kullal Khana, on the left bank of the Indus, about two miles below Giddoo Mull-jo-Tundo. This is the largest establishment of the kind near Hyderabad. It consists of four large stills, and produces at the rate of sixty to eighty maunds per mensem. All the spirit sold from this place undergoes three distillations, and is retailed at one rupee per seer (1½ lb. English). The following ingredients are used in the preparation of this spirit:—

Goor (coarse brown sugar)		40 seers.
Dates		20 „
Bark of the babool		10 „
Spice..	Cassia, Cloves, Anise, &c.	3 „

which quantity will produce thirty-two fluid seers of spirit, thrice rectified. The total cost of manufacturing one maund of spirits (materials and labour included) is stated to be Rs. 20. The tax imposed on this article amounts to Rs. 6-8-0 per three quarters of a maund, and Government obtains a revenue of Rs. 7,000 per annum from this establishment alone. The people engaged in this manufacture are,—Musulmans, inhabiting 5 houses; and Wanya Banians, inhabiting 5 houses.

The banks of the Sahoo section are much better peopled than those of the inferior parts of the Indus. The river itself presents a more animated scene, from the number of boats to be seen on it. Those of the woodcutters are the most numerous. The people who follow this occupation form a distinct tribe: they are allowed to cut the tamarisk on any of the jungles, with the exception of the Shikargahs, and they bring the same to the bank, as near to the capital as they can, where it is piled in heaps near the sheds in which these people reside, and the quantity daily required for the market is conveyed to Hyderabad on asses every morning. The tax imposed by the Government amounts to one rupee for each boat-load, and for this sum they obtain the privilege of taking the wood from the jungle, under the limitations above stated.

The character of these people is simple. They appear intelligent and communicative, living much in the style observed among the

Brinjarees, and keeping, like them, large fierce dogs, to protect their property.

The ferries in this section are likewise more numerous, and the thoroughfare by them greater, than in the lower parts of the river, between Kotree and Hilaya. These are eleven in number, established at the following points:—1*st*, at Kotree; 2*nd*, at Kullal Khana; 3*rd*, at Karaka; 4*th*, at Tikkoor (Trikul); 5*th*, at Choreputtun; 6*th*, at Kaurun-jo-Puttun; 7*th*, at Raja-jo-Gote; 8*th*, at Jerruk; 9*th*, at Sodun-jo-Puttun; 10*th*, at Kuddee-jo-Puttun; and 11*th*, at Hilaya-jo-Puttun.

The banks of the river at this section are portioned off into several Purgunas,* the most northerly of which, on the left bank, is the Doab in which Hyderabad is situated. It is so called on account of its position between the Fullailee, which forms its eastern boundary, and the Indus on the west. This Purguna extends along the bank from the efflux of the Fullailee to the point where this branch again flows into the Indus near Trikul. The district is distinguished by a range of low calcareous hills, the Gunjah, which is first met with, in ascending the river, at the south extremity of the Doab, and terminates at a short distance to the north of Hyderabad. The general direction of the range is nearly S. by W. and N. by E., running parallel to the river, at the average distance of about three miles from the bank. The hill on which Hyderabad stands is the most northerly of this chain: it has the form of a parallelogram, with the same direction as that of the range. Between this elevation and the bank of the Fullailee there is a plain of nearly one mile (average) breadth, and between its western side and the Indus there is another plain, which has an extent of three miles and a half in breadth. The eastern plain, or that of Fullailee, has a greater elevation than that which exists between the main river and the hill, so that, on approaching the summit of the latter from the east, the ascent is not so great as when the approach is made from the opposite side. Besides, the hill of Hyderabad presents a single abrupt mural face on its eastern side, of twenty-five feet perpendicular height, the houses of the town being built close upon the margin, and only approachable at a few points, where the ascent has been made more easy, by the side being reduced to an inclined plane.

* The Purgunas along the banks of this section are as follow:—

Right Bank.	*Left Bank.*
1, Kotree.	1, Dooaba.
2, Karaka.	2, Sattar.
3, Shaal.	3, Pulleejhar.
4, Dubyar, or Garkha.	4, Kuddee.
5, Sonda.	5, Alma-jo-Kote.

The west side of the hill presents two such perpendicular faces, the lower being separated from the more elevated by an intermediate plain of varied breadth (on an average a quarter of a mile), which forms a stage half-way between the low plain at the foot and the plateau which constitutes the summit of the hill. On this middle plain there are situated a few scattered huts, and its elevation above the low ground may be twenty-five feet; which may likewise be the difference of elevation between it and the superior platform. The latter has an uniform breadth of 600 yards, and a length of two miles. At its southern extremity is situated the citadel of Hyderabad, which is separated from the town by a dry ditch forty yards broad, and forms the only artificial defence of this city. This, like the houses of the town, is built close to the margin of the perpendicular side of the hill, which is faced, from its base upwards, with the brickwork of the outer wall. This wall, after reaching the level of the plateau, is carried to the height of fifty feet above it, and is supported, on the inner face, by a bank of earth or rubbish, which, from the level of the surface of the plateau, reaches to within a few feet of the embrasures. This gives the defence greater strength than a superficial examination of the rampart from the outside would lead the observer to attribute to it. On observing the inner face, the parapet is seen to form a very gently inclined plane, from within four feet of the top of the wall, until it reaches the general level of the surface.

The ditch, which separates the citadel from the town, also insulates the southern extremity of the hill on which the citadel stands, and the communication is maintained by means of a bridge, which is situated in front of the principal entrance into the fort, and opposite the main street, or bazar, which stretches from this point to the northern extremity of the town, in a straight line. The entrance is defended by a semicircular curtain, and in order to reach it, on whatever side the approach be made, you must traverse one-half of the breadth of the town, through streets of about ten yards wide. The buildings in the interior of the citadel present great confusion—much more so than is observed in the town itself. The structures are of all kinds, placed without any apparent arrangement, and only admit of communication between one part of the fort and another by narrow, crooked lanes. The bungalows in which the princes reside, the chambers set apart for public business, and in which they hold their Durbar, the dwellings of their domestics, their mosques, stables, and Harems, are all situated within this fort; in which there are no gardens, no Maidan, or open square, for the purpose of exercise, or for ventilating the intricate mass of dwellings which are heaped together in close disorder, and are all surrounded by a high wall, which is overtopped only by the large round

tower, the most conspicuous building in the citadel, and by two or three of the bungalows, in which the Ameers reside. Within this stronghold the princes of Sind live immured, and seldom go out except for hunting, in which amusement, however, they seldom indulge more than once or twice a year. The space occupied by the town of Hyderabad has a very regular form, and the result of several experiments, made by our people to ascertain the area, gave the following dimensions* :—

Length from the bridge over the ditch of the citadel to the north extremity of the town	1,161 yards.
Mean breadth of the plateau occupied by the houses, from east to west	510 „
Which gives an area of	592,110 sq. yds.

On this surface the buildings are densely accumulated; but the streets by which the communication is kept up are regularly arranged, and, though narrow, are tolerably clean. Besides the bazar before mentioned, which forms the main street, there are two others, which run on either side parallel to it, and traverse the whole length of the town. These, again, are crossed at right angles by shorter streets, which run east and west.

No water is procurable, either on the portion of the plateau on which the town is built, or on that which stretches beyond the northern extremity of the city for the distance of a mile and a half, which is merely occupied by a few tombs of the deceased rulers of the present and former dynasties, the surface being bare, arid, and stony.

The inhabitants of Hyderabad are supplied with this necessary from the plain at the foot of the hill on which the city stands.

The ditch situated at the base of the hill† always contains some stagnant water, and serves the poorer classes; but those who can afford it derive their supply from the Fullailee,‡ through which, though the water is collected in small pools, there is still a feeble current, even in the dry season, from the main river, which prevents the water from becoming salt, as usually takes place when a body of water remains

* My premature departure from Hyderabad interrupted my inquiries regarding the statistics of this capital. I hoped to have furnished some precise data by which the population of Hyderabad might have been fixed.

† Captain Maxfield has stated that the Fullailee is situated close to this hill; but this branch is at some distance, and only supplies the water of the ditch during the swell.

‡ Persons engaged in carrying water to the town from the Fullailee are,—
Bheestees.....300 men.
Mussakchees .....150 men.

long stagnant, in consequence of the large proportion of salt in the soil of Sind.

The Ameers derive their supply of water also from the Fullailee, which is carried to the citadel in skins on bullocks. There is no potable water within the fort, and I could not ascertain if there were any wells. I am inclined to think there are none, for all water procured from wells in this part of Sind contains so large a proportion of common salt that this article is procured for the market by the simple evaporation of well-water. This process is carried on in several places, but the largest supply comes from Karaka.

This serious inconvenience must render the defence of the town and citadel impracticable, even had the former been surrounded, as usual, with walls; and this fact explains two others,—1*st*, why the town is not so defended; and 2*nd*, it accounts for the practice of the rulers of this country never to attempt the defence of Hyderabad, but, on the approach of any formidable enemy, to abandon the place, and retire to the desert.

No respectable persons reside in the town itself, which is solely occupied by Banian artizans, and the more menial attendants on the court. Persons of respectability, who have not quarters within the fort, reside in some of the small hamlets situated, on all sides of the city, over the plain which surrounds it. The favourite situation for these hamlets is on the bank of the Fullailee, along which, also, are situated the gardens belonging to the Ameers. These hamlets are called Tandas in the language of the country, and each is named after the principal person who, with his relations and servants, occupies it. Casual visitors encamp on the same plain, the Ameers being quite unprovided with quarters near Hyderabad, except those occupied by themselves within the fort; so that no accommodation but tents, and no large buildings for stores,* can be looked for outside of the town.

Many of the villages in the surrounding district are inhabited by people whose occupations are directed to supply the various wants of the citizens of Hyderabad, the inconveniences of which place oblige them to reside at some distance, for the sake of water and space, which the confined situation of the town does not afford. The people to whom I allude are principally those who distill spirits, besides dyers, washermen, blacksmiths, wood merchants, &c., for whose occupations the vicinity to the bank of the river is more or less essential.

A very small proportion of the provisions required for the population of Hyderabad is supplied by the district adjoining the city. Of animal

* The common mode of storing grain is to collect it in small heaps, on the field or near the bank of the river, which are covered with straw, and clay smoothly laid over the latter. In this way the grain is kept until it is required.

food, fish is the article consumed in the largest quantity, affording the chief sustenance of the largest number of the middle and poorer classes. But a very small proportion of the quantity consumed is derived from the Indus directly: more is taken from the almost stagnant pools of the Fullailee; but the principal supplies come from Kenjur and Mahjur lakes, the first of which is situated near Hilaya, and the other at a short distance from the efflux of the Pinyaree, near Ooplana. These are supplied through canals or small branches during the swell of the river, and contain water throughout the year. The fish enter during the swell, and when the river sinks, leaving the canals dry, they are confined to the lakes or dunds, in which they swarm, and are caught with little trouble. From the lakes just mentioned, the fish is brought in a fresh state to the Hyderabad market in baskets, on horses or mules. The distance between the Kenjur lake and Hyderabad (twelve kos) is performed in one night, by means of relays of fresh horses stationed along the road. The supply from the other dunds, which are situated at a greater distance, as that of Kotree, near Mughribee and Sakra, in the Purguna of the same name, is brought to market in a salted state.

The bullocks and sheep which are consumed by the wealthier portion of the inhabitants are brought from the hilly district to the westward, whose inhabitants bring them to the plains near the river, in exchange for the rice and grain which their country does not produce. During the period of my residence in Hyderabad, I found the daily consumption of butcher's meat amounted to from a hundred and fifty to two hundred head of sheep, and two or four bullocks every two or three days. On the Eeds, or days of festivity, the number of sheep consumed will be increased to three hundred, as on such occasions the poorer classes indulge in better than their usual fare of fish. The supply of sheep and bullocks brought to Hyderabad at once is generally very limited, not exceeding two days' consumption; the reason of which is, that the vegetation of the plain around Hyderabad is incapable of affording nourishment to any number of cattle.

The grains which supply the vegetable food of the various classes of the population of Hyderabad being identical with those used in India, no description is required, further than an enumeration of the kinds, with the prices at the period of my visit, which I have added in the Appendix.

The population which inhabits Hyderabad is very miscellaneous, consisting of Natives not only of Sind, but people from foreign countries, such as the Belooch and Afghan States, from Mooltan, and the countries on the eastern frontier. From the circumstances stated in a note, I have been unable to fix the amount of the population; but the information which I have collected on the statistics of this city will be found in the Appendix.

APPENDIX.

Statement of the Villages on the Right Bank of the River Indus, between the Latitude of Hyderabad and the Efflux of Hujamree.

No.	Names.	Distances in Kos	No. of Huts.	Name of the Tribe or Clan inhabiting the Village.	Remarks.
1	Kotree	..	600	Mohana and Lohana.	
2	Karaka	2	50	Mohana.	
3	Shaal	6	45	Summa (Sindee).	
4	Khamreya	1	40	Khamree (ditto)	Canal diggers.
5	Dooda-jo-gote	4	20	Khoja and Duffair	Tanners.
6	Rajun-jo-gote	1	60	Mohana.	
7	Jhirken-jo-gote	2	400	Jhirk (Sindee).	
8	Laka Peer-je-Jugga	2	1	Syud.	
9	Sonda-je-Pour	2	100	Sonda (Sindee).	
10	Heelaheen-jo-gote	4	40	Heelayah.	
11	Lulungan-jo-gote	4	30	Lulung.	
12	Balakram-jo-gote	4	50	Mohana	Situated about 1 kos from the town of Tatta.
13	Soomra	1¼	25	Soomra (Sindee).	
14	Beejora	0½	50	Sora (ditto).	
15	Mochar	0½	15	Mohana.	
16	Teejun-jo-Poora	2½	25	Dull (Sindee).	
17	Katee	2	40	Khooshk (Belooch).	
18	Widh	1	400	Chang (ditto).	
19	Hayatga-jo-gote	1	15	Sundh (ditto).	
20	Syud Rooshun Ally-jo-gote	2	15	Dulla & Nareenja (Sindee).	
21	Bemun-jo-Poora	2	14	Kooreenja.	
22	Rakhail Shah-je-Kotree	1½	100	Soomra.	
23	Lukkee	2	45	Soomra.	
24	Buchay-jo-gote	2½	12	Dull.	

Villages on the Right Bank of the Hujamree Branch.

No.	Names.	Distances in Kos	No. of Huts.	Name of the Tribe or Clan inhabiting the Village.	Remarks.
1	Bun-jo-gote	..	20	Kalla.	
2	Oodasee	1½	12	Maree (Belooch).	
3	Nundee (or Small) Jumanee	1½	13	Dull.	
4	Wudhee (or Great) Jumanee	1	19	Dull.	
5	Pinnay Belooch-jo-gote	1½	40	Choolanee (Belooch).	
6	Trotee (Small)	0¾	9	Jutt (ditto).	
7	Trotee (Great)	0¼	12	Jutt (ditto).	
8	Mahmooda-jo-gote	2			
9	Johen-jo-gote	2			
10	Humbus	1½			
11	Kharean-jo-gote	1			
12	Moonaree-jo-gote	1			

Statement of the Villages on the Left Bank of the River Indus, between the Latitude of Hyderabad and the Efflux of the Hujamree.

No.	Names.	Distances in Kos	No. of Huts.	Name of the Tribe or Clan inhabiting the Village.	Remarks.
1	Giddoo-jo-Tundo	..	480	Mohana and other tribes.	
2	Meer Khan Lohar-jo-Tundo..	3¼	33	Lohar (Sindee blacksmith).	
3	Karakhay-je-Pour	1¼	..	Mixed tribes.	
4	Shah Meer-je-Vasien	2	20	Ditto.	
5	Tikkoor (Trikul)	3	30	Nihyan (Sindee).	
6	Sangwaree Meeanee	2	15	Mohana	This tribe resides here during the Pulla season only.
7	Bhaeet-je-Meeanee	2	40	Mohana.	
8	Jokhee-en-jo-gote	2	15	Jokhen.....	Situated on the mouth of the canal of Sungutrow.
9	Bunna.....	2	20	Paleeja (Sindee).	
10	Kuddee	5	30	Mohana.	
11	Aulmay-jo-Kote.....	2	45	Paleeja (Sindee).	
12	Ranten-jo-Shahur	1½	30	Ranta (ditto).	
13	Soorjun-jo-gote	1½	15	Soorjun.	
14	Balo	1½	50	Mehmon (Sindee weaver).	
15	Chuck-jo-gote.....	2	50	Summa (Sindee).	
16	Ahmed Khan Lugaree-jo-gote.	3	100	Lugaree (Belooch).	
17	Sumun-jo-Puttun	2	40	Soomra (Sindee).	
18	Kanaden-je-Museed	4	16	Kanad (ditto.)	
19	Ooplana.....	2	40	Moobranee (Belooch).	
20	Goonganeen-jo-gote	2	60	Goonganee (ditto).	
21	Syud Kadirnay-jo-gote	4	40	Summa.	
22	Babren-jo-gote	2	12	Keher (Belooch).	

Villages on the Left Bank of the Hujamree Branch.

No.	Names.	Distances in Kos	No. of Huts.	Name of the Tribe or Clan inhabiting the Village.	Remarks.
1	Seyan-ja-Moonh-jo-Puttun ..	..	4	Dull (Sindee).	
2	Syud Goolam Hussain-jo-gote.	2	6	Chunna (ditto).	
3	Ghunes Deyan-jo-gote	2	16	Keher (Belooch).	
4	Bhagana	2	12	Gudda.	
5	Moorad Jettoee-jo-gote.....	1½	16	Dandhee (Mohana).	
6	Ghoogun-jo-gote	1	6	Keher (Belooch).	
7	Ghoray-jee Baree	1½	16	Keher (ditto).	
8	Baree Gorah	0¼	250	Mohana, Lohana, &c.	
9	Ghooghun-jo-Puttun.....	1			
10	Chaglee Monh-Waree-Pour ..	2			
11	Rahphotejee Monh-waree-Pour.	2			
12	Katee Yohun.....	1			

Statement of the Artizans, Traders, &c. inhabiting the City of Hyderabad.

No.	Designation.	No. of Shops.	No. of Men.	Remarks.
1	Grain-dealers	40	300	
2	Vegetable-sellers	25	150	
3	Ironsmiths	60	325	
4	Coppersmiths	80	175	
5	Goldsmiths	45	100	
6	Tanners	13	21	These people work under sheds, called Juttas, of which there are three in number.
7	Shoemakers	3	260	
8	Saddle-makers	32	275	
9	Armourers (swords and muskets)	40	300	
10	Gunpowder Manufacturers	..	50	This is carried on by Beloochees.
11	Lohars	40	..	In these shops old iron, nails, knives, &c. are sold.
12	Cloth Merchants	100	425	
13	Jewellers	7	13	Principally from Mooltan.
14	Vendors of Needles, Thread, Small Boxes, &c.	3	7	
15	Comb-makers	50	108	The combs are made of a wood resembling the boxwood, which is brought from the Hala Hills; the article is extensively exported.
16	Sweetmeat Vendors, &c.	70	350	
17	Dealers in Oil and Ghee	9	..	
18	Dealers in Mussala, Curry-stuff, &c.	12	32	
19	Carpenters	14	30	
20	Washermen	..	325	These people pursue their avocations on the banks of the river.
21	Dyers	..	275	
22	Butchers	75	300	Four shops are exclusively for the use of the Meers.
23	Bheestees	..	300	Bullocks are used by these people to carry water.
24	Mussakchees	..	150	These people carry the water in leathern bags, on their backs.

Return showing the Number of Vessels which annually frequent Baree Gorah, on the Hujamree; and the Nature of the Imports and Exports.

No.	Ports.	No. of Vessels.	No. of Trips.	Imports.	Exports.
1	Mandvee	60	300	Teakwood, bamboos, bansa, dhope wood, copra (dried cocoanuts), dates, cotton, cocoanuts, betelnut, pepper, iron cauldrons, moong, wheat, musroo (a kind of silk cloth), and handkerchiefs..	Rice, and red sugar.
2	Jukkow	5	20	Ditto ditto..	Ditto ditto.
3	Moondra	6	18	Ditto ditto ..	Ditto ditto.
4	Anjar	5	15	Iron cauldrons, cotton, and moong	None.
5	Jamnuggur	3	15	None	Rice, and red sugar.
6	Khumbaleya	5	10	None	Ditto ditto.
7	Bate.....	5	10	None	Ditto ditto.
8	Bhalawur.....	2	2	Cotton, bamboos, and bansa	Ditto ditto.
9	Porebunder	2	2	Ditto ditto....	Ditto ditto.
10	Kurachee.....	30	150	None	Rice.
11	Kurachee, by Bombay, to Baree Gorah.	5	10	White sugar, sugar-candy, chintz, and handkerchiefs	None.
12	Kurachee by Muscat ..	2	4	Dates, fresh and dried, plums, and dried figs.	Rice, ghee, and leather.
13	Kutch, by Demaun....	5	5	Teakwood	None.
14	Sonmeeanee.....	20	40	Dates (purrah, leaves of the date tree), mats, bags, made of date leaves, and moong	Rice.
15	Choubar	10	20	Ditto ditto....	Rice.
16	Gwaddel	15	30	Ditto ditto....	Rice.

The Imports into this Port are consumed by the inhabitants of the Lower Delta.

Statement of the Grains grown in Sind.

Remarks.	No.	Sorts of Grain.	Quantity in Toyas.	Prices per Hyderabad Rupee.
Returns 15 to 1	1	Wheat	7 Toyas*	1 rupee.
Ditto 15 to 1	2	Barley	16 „	1 „
Ditto 20 to 1	3	Jowaree	10 „	1 „
	4	Ditto	16 „	1 „
Returns 20 to 1	5	Bajree	12 „	1 „
Ditto 5 to 1	6	Moong	8 „	1 „
Ditto 10 to 1	7	Musoor Dal	8½ „	1 „
Ditto 8 to 1	8	Muttur, or country Pea	10½ „	1 „
Ditto 8 to 1	9	Chunna or Gram	10½ „	1 „
Ditto 30 to 1	10	Naglee or Nachnee	16½ „	1 „
Indian Corn, returns 12 to 1	11	Mukhaee	16½ „	1 „
	12	Sooghdasee†	7 „	1 „
	13	Garrah‡	9 „	1 „
Varieties of Rice	14	Gunjah.		
	15	Timmo.		
	16	Ach'hro.		
	17	Mote'eo.		

* *Grain Measure of Sind.*

Bombay Seer.		Patee.		Toya.		Kassa.		Kurwar.
1	=	1						
		4	=	1				
				4	=	1		
						60	=	1

† The finest variety of rice grown in Sind.

‡ The only variety of rice grown in the belt where the general inundation is experienced.

MEMOIR

ON THE

DELTA OF THE INDUS.

BY THE LATE

LIEUTENANT T. G. CARLESS,

INDIAN NAVY.

Submitted to Government in September 1837.

DELTA OF THE INDUS.

About fifty miles from the sea, the river Indus, a few years ago, divided into two grand arms, the Buggaur and the Setta: all its mouths and branches were then open, and some were navigable for vessels of considerable size. Extensive changes have since taken place, and these have been carried to such an extent that the course of the river in the Delta has been entirely altered, and most of its branches destroyed. During the dry season, no communication now exists between the Buggaur and the main stream, a sandbank having accumulated at the confluence, which fills up its bed for a distance of several miles, and is five or six feet above the level of the water. In all the branches diverging from it, the water is salt for the greater part of the year, and they are then merely inlets of the sea. The Setta, or Eastern Arm, as it is called in the late maps, pursues the same course to the ocean as the great river from which it is supplied, and is in fact a continuation of it: in every part it preserves a similar magnitude, and for the last ten or twelve years it has been, as it is now, the principal channel of the Indus. In its passage to the sea it receives many local appellations, but is best known near the coast as the Wanyanee. Of the five branches it formerly sent off, the Mull and Mootnee, discharged by the Mull and Kaher mouths, are completely choked at the part where they leave the parent stream, their beds being now nearly level with the adjacent country, and partially overrun with jungle. The other three, the Hujamree, Kedywaree, and Teeteeah, pursue a westerly course to the sea, and are the only branches that are now favoured by the fresh water in the dry season. The two first empty themselves by the mouths of the same names, and possess navigable channels into the main river; but the latter is merely a narrow and shallow creek, that conveys a very small portion of water to the Richel mouth. Above the Delta, the Indus throws off two more branches,—the Pinyaree and Fullailee, which are rivers only during the inundation: after it has subsided, they dry up, in many places for miles, and in others form a series of shallow stagnant pools, that have no connection. They are, besides, closed by

bunds or dams, thrown across them above the seaport towns, in order to retain all the fresh water that passes into them, for agricultural purposes.

The Indus formerly reached the sea through eleven large mouths; but three now suffice in the dry season to discharge its waters. Of these the Phittee, Pyntianee, Jona, and Richel belong to the Buggaur, and the Hujamree, Kedywaree, Kookewaree, Kaher, and Mull, to the Setta; the Seer and Koree are entrances to the Pinyaree and Fullailee branches, and complete the number. Besides these, there are many small mouths, some still open, and others that are partially choked; but as it would only tend to confuse, I shall not name them. At present the Kookewaree, which gives egress to the waters of the Wanyanee or main river, is the grand embouchure of the Indus. In the late maps it is called the Gora, but erroneously so; for that mouth was deserted by the stream some years ago, and its site is now occupied by an extensive swamp, intersected by several small creeks. There are only two other mouths, the Hujamree and Kedywaree, that discharge fresh water in the dry season: some of the branches that have been partly destroyed receive a small supply by means of canals cut for the purpose, and are said to be fresh in the upper part, but at all their mouths the water is salt.

From the foregoing sketch of the state of the Indus, in the Delta, it will be perceived that only two of its large branches have at present a communication with the main stream in the dry season. A trigonometrical survey of these, and of the main river, from its mouth to the Teeteeah, a distance of thirty-five miles, has recently been completed, and I shall now proceed to describe them, with the part of the coast that has been examined, and such other facts connected with the Delta and its rivers, as have fallen under my observation in the course of the survey.

Between the eastern and western mouths of the Indus, the sea coast* of the Delta runs nearly in a straight direction to the north-west, about 125 miles: the shore is low and flat throughout, and at high tide overflowed to a considerable distance inland. With the exception of a few spots covered with jungle, which serve as marks for indicating the mouths of some of the rivers, it is destitute of trees or shrubs, and nothing is seen for many miles but a succession of dreary swamps: wherever these occur, the land is scarcely discernible two miles from the shore, but at those parts where there are bushes, it is visible from the deck of a small vessel about double that distance. Between the

* In the charts now in use, it is laid down above half a degree too far to the eastward; and the same error will be found in every part that exists at the Hujamree and Koree mouths, where the longitude has been ascertained by numerous observations. The former is in 67° 25′ 21″ E., and the latter in 68° 30′ E.

Seer and Koree mouths it is overspread with low mangrove jungle, running far into the sea; and from the former, a bare uninhabited marsh, without a single bush or other object to relieve the eye, extends up to the Mull mouth, a distance of thirty-five miles. It is intersected by four large salt-water creeks, or rather inlets,—the Kaja, Roudah, Waree, and Khye,—which run far into the land, and are probably portions of destroyed rivers. Above the Mull, all the mouths of the Setta reach the sea within a space of twenty miles, and at this part the coast presents a peculiarity of formation not observable elsewhere: from the more elevated plains further inland, it runs off in a number of long spits or tongues of considerable breadth, which, from the rounded form they have assumed, bear the appearance of having been thrown up by a violent rush of water. They are composed of the soil deposited by the inundation, and, being always submerged at high tide, have not become firm, like the tracts that are only overflowed at intervals. The highest part is covered with a kind of long thorny grass, and they are separated from each other by creeks leading into the different rivers, which, with their numerous ramifications, form an excellent water communication throughout the districts on this part of the coast. Above the mouths of the Setta, tamarisk jungle is seen for the first time near the sea: there is a large patch on the north point of the Richel mouth, and, although not very high, it serves as a mark for distinguishing that entrance from the others. On a coast so devoid of objects, and so extensively flooded at times, it is often difficult to discover the mouths of the different rivers; and the pilots, many of whom have passed their lives in navigating it, are frequently a long time before they can find them.

The broad alluvial bank, projecting everywhere from the coast, extends from the bay of Kurachee to the north-western extremity of Kutch, and in width varies considerably. Off the mouths of the Setta, where numerous shoals and flats have been cast up by the greater strength of the tide, it runs out in some places five or six miles, and is dry for a distance of twenty miles along the shore. At the Koree mouth it is of a similar breadth, but only dries here and there in small patches: in other parts, the outer edge is only two miles from the land, sometimes less, and there is a depth of water on it which, from three fathoms, decreases gradually, as you approach the shore, to three or four feet. That part of the bank lying off the mouths of the Setta, which extends further out, and has attained a more advanced stage of formation than any other, has been thrown up partly by the strong current from the river, and partly by the heavy sea of the south-west monsoon. It covers an area of not less than sixty square miles, and, with the exception of the narrow channels leading across it, dries at half-ebb. The interior part is composed of soft clay, mixed more or less with sand, and, near the

shore, grass is seen springing up over the surface in large patches. Further out, extensive sandflats have been formed, which have risen to such a height that they are not covered in many places at the highest tides: they are smooth and firm, and a few blades of grass have already made their appearance on the most elevated parts. Being thrown up by the sea, they are steep along the outer edge, frequently rising almost abruptly from a depth of two or three fathoms, and they abound with a species of long thin worm, which serves as an article of food for the swarms of aquatic birds that frequent the coast. From the report of the Natives, the whole of this portion of the bank is rapidly rising above the surface of the sea, and before many years have elapsed it will probably be added to the land. Outside the bank, the bottom is very soft; but on it, except in a few spots, and in all the channels leading across it, extremely hard, being composed of sand, mixed with a very small quantity of clay. Very little mud is found in any of the rivers, except the Koree, it being, apparently, all carried out of them by the strong tides, and not deposited until at such a distance from the shore as to be out of their influence.

The tides are everywhere extremely irregular: between the Seer and Mull mouths there is a feeble current setting constantly to the ESE., along the shore, and the flood or ebb can only be distinguished by the rise or fall of the water, which is only four feet. No rivers are discharged on this part of the coast, and the sea is very slightly discoloured in consequence. Off the mouths of the Setta, the ebb runs out of the different channels in a broad, muddy stream, direct from the land, but quickly loses its strength as it leaves the bank. Here the water is fresh at low tide, five or six miles from the shore, and the rise and fall increases to ten feet: in other parts, where the small mouths are numerous, the tides change their direction almost every hour, and are scarcely felt two miles outside them.

From the beginning of October to the middle of March, the Sind coast is navigated, by the boats of the country, without difficulty or danger: the soundings are everywhere a sufficient guide, and, in general, decrease so gradually, that no danger is to be apprehended in approaching it. The only shoal of any consequence is the great bank off the mouths of the Setta, which projects beyond the line of the direct route to the northern rivers. From the dangerous appearance of the breakers during the sea-breeze, the Native boatmen have a great dread of approaching it, and at night always stand out into eleven or twelve fathoms, before they venture to pass it. During the fine season, land and sea-breezes generally prevail, with cold clear weather; but the wind sometimes blows very fresh from the north-east, and the atmosphere is then obscured, by clouds of fine dust, many miles from the land. The

season terminates long before it does on the Malabar Coast, and the navigation then becomes very dangerous. Early in February, westerly winds set in with considerable violence, and for the first fortnight the weather is always very tempestuous. Strong gales also sometimes blow from the same quarter, and there is a heavy, tumultuous sea running, which breaks across the mouths of all the rivers. Short intervals of moderate weather occur afterwards, until the middle of March; but after that date, the Indus may be considered closed for the season. A few of the most adventurous of the Kutch boatmen sometimes navigate the coast, and enter the river, as late as the end of April; but it is considered a very hazardous undertaking, and their vessels are frequently wrecked in attempting it.

The fisheries carried on along the coast give employment to about a hundred vessels, and are a profitable source of commerce to the inhabitants of the seaport towns. Mughribee, situated upon the Seer river, sends about thirty boats, and Kurachee nearly double that number. The dinghees or sea-boats employed, seldom exceed ten or fifteen tons in burthen, and, from their construction, are well adapted for navigating the coast, or entering the shallow mouths of the rivers. They have great beam in the centre; and the bow and stern, which are precisely similar in form, are very sharp: some are decked over, but others have merely a light platform abaft, for the convenience of steering; and they are rigged with a single lateen sail. The upper part of the stem is always carved, and profusely ornamented with coloured cloth, heads, shells, and other trifles: this is done by the boatmen from a superstitious belief that it propitiates the saints, and secures success in fishing. These boats sail very fast in smooth water, and, from their buoyancy, are enabled to run into the shallow mouths through the breakers, without sustaining the least injury or inconvenience. The best fishing ground is about the great bank, and along the coast immediately below it. In the fine season, the sea about those spots is covered with buoys, and clusters of boats are seen at anchor, waiting for the turn of tide to examine their nets. Besides sharks, which abound, several kinds of large fish are obtained: two of these, called by the Natives Ringan and Seeree, are varieties of the cod, and are valuable for their sounds, which, with sharkfins, are exported to Bombay, for the China market. Other kinds, such as the seer fish, cavalho, and red snapper, are taken in such quantities, that only the best are preserved for the purposes of commerce, as the supply would otherwise exceed the demand. Every evening, the boatmen proceed to the nearest river, and send on shore all those that are not required; for they imagine that if they were thrown overboard they would scare the others from the coast. At the spots frequented by them for this purpose, the shore is covered with

fishes in every state of putrefaction, and there is such an intolerable stench that it is almost impossible to remain in their vicinity. Most of the men engaged in the fishery belong to Kurachee, and are rather superior in point of intelligence and appearance to the other inhabitants of the sea coast.

The large boats employed in the trade to Muscat, and the ports on the Malabar Coast, are from thirty to fifty tons in burthen, and sail principally from Kurachee. They are built in the same form as the fishing dinghees, but are disfigured by a very high poop, and have their sides raised several feet above the gunwale with mats and bamboos. There is not a greater number than thirty or forty of these sea-going vessels in Sind, and none of them are armed. A few of the largest belong to the merchants at Vikkur and Darajah, and ascend the rivers on which those towns are situated without difficulty.

The general course of the Hujamree, or, as it is called in the upper part, Seeahn river, is WSW., and its length forty miles. It quits the parent stream about twenty-two miles from the sea, and is the most winding of all its branches: in some parts you do not advance in a direct line more than one mile in three; and the reaches turn back so directly upon each other, that nothing but a narrow neck of land, scarcely a hundred yards broad, is left between them. Its mouth opens like a funnel, and, with the exception of that part where the stream takes its course along the right bank, is occupied by a broad flat, partially covered with water. This forms a continuation of the bank, everywhere extending from the coast, which is here rather more than a mile in breadth. The best and largest channel leading across it runs in a NNE. direction, towards the north point of the river, and is 600 yards wide. At the entrance there are heavy breakers on either side, and at high-water no greater depth is found on the bar than thirteen feet. Besides this channel, there is another, three or four hundred yards above it; but it is extremely shallow, and can only be used by the smallest boats, when the weather is moderate. About this mouth the land is extremely low, and entirely destitute of trees, or other remarkable objects,* by which it may be known.

A short distance above the entrance the river has a width of 550 yards, which decreases gradually as you proceed upwards, until it contracts to a narrow stream, not more than 50 yards broad. Bunder Vikkur, its port, is situated twenty miles from the sea. Below that town, the channel occupies about half the stream, and, with a few exceptions, crosses from side to side at the middle of each reach. The

* A beacon has been lately erected on the north point of the river, that can be seen ten miles from the land; and buoys are to be placed in the channel leading into it, as soon as they can be got ready.

deepest part is generally found close to the steep banks, and the shallowest wherever they rise gradually from the water. The soundings are very irregular, and there is frequently a depth of six or seven fathoms; but at high tide there is nowhere less than twelve feet, until you arrive at an extensive bar or flat nineteen miles from its mouth, on which not more than seven feet and a half is found. This is the only obstacle that exists below Vikkur, and the large boats arriving from Kutch and Guzerat are frequently detained until the height of the springs before they can cross it. Immediately above Vikkur, the river runs in a succession of reaches, broader in the middle than at the ends, where they contract so much as to leave a passage barely eighty yards wide. Here it is alternately deep at the angles, and shallow wherever it widens: on the flats, the depth varies from three to eight feet, but they are full of holes, and a continuous channel of more than five feet nowhere exists. Near its junction with the main stream, its breadth for many miles rarely exceeds fifty yards; and in the dry season, when there is not more than three feet water on any of the shoals, it is easily forded in six or eight different places. At this part it has shrunk within its former limits considerably, and now appears like a large creek, wandering through the deserted bed of a river. The old banks are visible throughout, and at least 300 yards apart.

Quitting the main river in a direction nearly opposite to the course of its current, the water is prevented in a great measure from entering the Hujamree, and the quantity that finds an outlet through it is very small. In the upper part, the current is extremely feeble in consequence; but below Vikkur the tides, influenced by the ocean, are much stronger. Even there, however, they are not rapid, for their velocity is scarcely ever greater than three miles an hour, and is generally much less. At Vikkur, the flood is irregular in its approach, and ten miles above, it ceases to be felt altogether. At the mouth of the river there is a rise and fall of eight feet, and it diminishes gradually, in ascending, to nine inches.

At high-water, vessels drawing nine feet can pass into this branch without difficulty, but none of a greater draught than seven feet can ascend it as high as Vikkur: the boats that navigate it throughout, in the dry season, do not draw more than two feet eight inches.

In its course to the sea, the Hujamree sends off several creeks, which connect it during the inundation with the branches of the Buggaur. Of these, the Chagooloo quits it about five miles below Vikkur, and the Kedywaree, once a broad and deep river; a few miles further down: midway between them there is also a large canal, called Bowra-ke-Wah, constructed some years ago by a wealthy Hindoo, whose name it bears. After the swell has subsided, they all partially dry up; and the only

communication which then exists between this river and the western branches is by a salt-water creek close to its mouth, called the Bugha. At high tide, it affords a passage to the largest doondees; and by this route they are enabled to enter the Richel, and proceed up that river into the Buggaur, which is said to be accessible to vessels drawing fifteen or sixteen feet. From that arm they pass through a creek into the Gahrah, a small stream that leads to the harbour of Kurachee. On the eastern side, the Rahpoora Creek leaves the Hujamree five miles above its mouth, and, after pursuing an irregular course to the SSE., falls into the lower part of the Kedywaree branch. It is never filled until the night tide has risen to its greatest height, and even then is so narrow and shallow that it can only be used by the smallest boats, opposite the village of Jona. A few miles higher up, a large canal, called Jahloo, also affords a communication with the Kedywaree: it joins that stream near its confluence with the main river, is navigable for boats of some size, and connected by a small branch with the Rahpoora.

About the mouth of the Hujamree the land, from a short distance, appears dry, and covered with the richest verdure; but on a closer inspection is found to be one vast swamp, thinly overspread with a species of coarse thorny grass, mixed with rushes, and intersected in every direction by small creeks. Above these plains, which extend about five miles from the coast, and are partially overflowed by the spring tides, the jungle commences, and cultivation is first seen: the country, however, is still very swampy; for although the banks of the river are sufficiently high to keep out the water, it obtains access to the interior through the numerous canals cut for the purposes of irrigation, and converts each field into a deep marsh, only passable on the narrow bank of clods raised to prevent its escape. About this part, the jungle is composed entirely of low mangrove bushes; but a short distance higher up the mangrove disappears, and gives place to the tamarisk. Below Vikkur, it is thinly spread over the face of the country in large patches, and in some places approaches to the verge of the river, but generally keeps some distance from it. The intervening spaces present to the view a succession of grassy plains or rice grounds, with here and there thickets of tall reeds and sedges.

About the dreary tracts of the sea coast there are few villages; but as you ascend the river, they are passed in quick succession, and numerous flocks and herds are seen roaming about in every direction, which give an appearance of animation to the scene not observable in any other part of the country. Above Vikkur, the tamarisk attains a greater height, and the jungle increases in density to such a degree as to be almost impervious. With the exception of a few low points, covered

with reeds, the banks of the river are so thickly fringed, that it is scarcely possible to pass along them; and the boatmen, when tracking their doondees, often find it difficult to proceed. Very few villages are visible from the river, but they are thickly scattered along the banks, a short distance inland.

About and below Vikkur, where extensive tracts are met with clear of jungle, a large portion of the land is under cultivation; but above that town, the spots cleared for tillage are small, and confined to the immediate vicinity of the villages. Nearly all the flats that now occupy the bed of the river are made available for agricultural purposes, and these, although not so productive as other localities, are preferred by the indolent Natives, on account of the little labour they require. Rice is almost the only kind of grain produced in this part of the Delta: barley and moong are cultivated, but the quantity grown is so small that it scarcely merits notice. From every part of the Hujamree numerous canals have been cut, to convey the water to the fields in the interior; but only those below Vikkur are filled in the dry season. Very few water wheels are in use, and they are employed in the irrigation of spots devoted to the cultivation of esculent vegetables.

Amongst the seaports of Sind, Bunder Vikkur ranks next in importance to Kurachee. The port takes its name from a small village in the vicinity; but the town is called Baree Gorah, after the old Gorah river, which formerly flowed past it to the southward. It is the only town in the Seeahn district, and belongs to Meer Nusseer Khan, the brother of the reigning Ameer, who obtains a revenue from it of rather more than a lakh of rupees, derived from his share of the produce of the soil, and a duty of ten per cent. on the trade. It contains about 200 houses, constructed of reeds and grass, plastered with mud, and, including the contiguous villages, has a population of about 1,200 souls, composed of Hindoos, Jutts, and a small number of Beloochees. At the few shops it possesses, nothing is procurable but rice, coarse cloth, tobacco, sweetmeats, and some trifling articles of domestic use. A strong spirit, extracted from the sugarcane, may be had at some of them, which is in great request amongst the inhabitants. Mutton is exposed for sale three days in the week; and butter, eggs, and fowls, which are both cheap and good, are supplied from the neighbouring villages. Vegetables can only be procured in small quantities, and are very inferior, consisting of brinjals, carrots, radishes, garlic, onions, and sweet potatoes.

Opposite the town, the river, although not more than a hundred and seventy yards wide, is deep, there being four and five fathoms close to the bank: it affords, in consequence, every facility for the discharge or shipment of cargoes, and the largest boats are enabled to lie close to the storehouses for that purpose. Besides numerous dinghees or sea-going

vessels, fifty or sixty flat-bottomed boats, of all sizes, from five to fifty tons in burthen, will generally be found here in the fine season.

Although the appearance of Bunder Vikkur is wretched beyond description, it possesses nevertheless a considerable trade, having become within the last few years a depôt for the greater part of the foreign and internal commerce of the Delta; which is entirely owing to its situation on the only river that now affords a communication by water with the upper parts of the country. As the water forsook the branches leading to the old ports (Darajah and Shahbunder), the trade naturally flowed into this channel, where it has remained stationary for some years; but as the river is fast filling up at its confluence, it will probably be diverted before long to other places. If it does not become choked, and a commerce is ever established by the Indus, Bunder Vikkur may naturally be expected to rise into considerable importance. The average number of boats that annually sail from it with full cargoes is about four hundred: of these, ten are sent from Bombay, three from Demaun, three from Muscat, nine or ten from the Mukran Coast, and the remainder from Kutch and Guzerat. In size they vary considerably; but it will not be far from the truth if twenty tons is assumed as the medium tonnage. The value of the trade is as follows:—

Exports.

Rice, 8,000 kurwars	Rs.	2,40,000
Ghee, 2,000 maunds		16,000
Ghur, 3,000 „		9,000
Grindstones, about		500
Total	Rs.	2,65,500

Imports.

From Bombay.—English cloths, about	Rs.	12,000
Sugar, 200 bags		6,000
Iron, 1,000 maunds		5,000
Copper, 300 „		18,000
Lead, about		1,500
Malabar Coast.—Pepper, 200 bags		7,000
Coir, coarse cloth, cocoanuts, &c.		3,500
Timber		10,000
Muscat.—Dates, about 6,000 maunds		12,000
Slaves, about 100		8,000
Dried fruits, pomegranate rinds, &c.		2,500
Kutch.—Cotton and coarse cloths		15,000
Total	Rs.	1,00,500

For some years past no route has presented such facilities to the Natives, for the conveyance of merchandize to the upper parts of the country, as that by the Hujamree branch; but, in consequence of the heavy duties exacted at different places on the main river, they have never been able to avail themselves of it. With the exception of a small quantity of timber, none of the goods imported to Vikkur ever find their way above the Delta, and these consist merely of such articles as are required for the most pressing wants of its inhabitants. Nothing is received from Upper Sind but a little indigo; wheat, although grown there in large quantities, being generally procurable at a much cheaper rate from Kutch and the Mukran Coast. The most valuable part of the trade has for many years passed into Sind by the seaport of Kurachee, from which place it is conveyed to Tatta and Hyderabad on camels. The amount of the imports levied along this route is about twelve per cent., but by the river it frequently exceeds thirty-five per cent., and is never less.

Along the course of the Hujamree, the beds of several deserted streams are still visible, which formerly connected it with the main river, and other branches. One of them, the old Gorah, flowed past Vikkur to the southward, and a few years ago was navigable for large vessels. Some idea may be formed of the rapidity with which the branches of the Indus fill up, when I mention that in 1831 Captain Burnes passed through it on his way to Hyderabad, and that when I visited it, four years after, the greater part of its bed was level with the plain. Hitherto it has been considered a matter of doubt whether large vessels ever navigated this celebrated river, or any of its branches; but the recent discovery of one on the banks of the Hujamree, about two miles above Vikkur, has placed the point beyond dispute. She lies half embedded in the ground, about a hundred and fifty yards from the river, and is at least 400 tons in burthen: her hull, which is of the old-fashioned build, and pierced for fourteen guns, is almost entire; and she is said to have belonged to the fleet of the Kulhora Princes, the former rulers of Sind. One of the men employed during the survey as a pilot had served on board of her in his youth; and by his account, the remains of others of a much larger size were visible until very lately in different parts of the Delta.

On examining the Hujamree again, since the survey was completed, I found that considerable alterations had occurred throughout its course. In many places the channels have shifted from one side to the other, and in general become shallower; new shoals have risen above the surface; and there is scarcely a part of the river where the depth is the same as it was before. At the mouth, it is less in some places by five feet; and, in strong westerly winds, the water now breaks right

across it. At the north point, the combined effect of the south-west monsoon and the inundation is exhibited: formerly the bank was steep, and there was a depth of seven or eight feet close to it; but now it shelves gradually off, and projects fifty yards further into the stream, a flat of hard sand, so firm that in walking over it the foot leaves no impression, having accumulated along it for a distance of four hundred yards up the river. Large masses of clay have been torn from the bank by the violence of the current, and carried out upon this shoal, where they have become firmly fixed as the sand was thrown up, and, from a short distance, now appear like detached rocks protruding through the surface. When this branch was first surveyed, a narrow channel of twelve feet led from the main river into it; but on examining it again, not more than five feet could be found in the deepest part. A shoal has also accumulated just before it, and this has been thrown up in such a position that it prevents the water in a still greater degree from turning into it. The most extraordinary change, however, is observable in the second reach from the junction, where the old steep banks of the river are three hundred yards apart, and which is about a mile in length. Previous to the last inundation, the stream, fifty yards wide, took its course along the *right* bank, and the remaining space was filled up by a piece of land, in such an advanced stage of formation that it had been brought under cultivation: now the stream flows close along the *left* bank, and the flat has shifted its position to the opposite side.

From the direction in which the Hujamree leaves the parent stream, very little water passes into it, and the current has not sufficient velocity to prevent the earth brought down from settling in its bed. It is fast filling up at the junction in consequence, and before long will become impassable, from the same cause that has operated in closing the Buggaur and other branches. This however might, perhaps, be prevented. About half a mile below the part where it is thrown off, the main river turns with a sharp bend to the southward, and the whole body of water is precipitated against the right bank, which is very steep, with considerable force: if a canal were cut from the angle in the same line as the current runs down upon it, and about 1,500 yards in length, it would reach one of the windings of the Hujamree, and, from the volume of water that would be thrown into it by this means, with the increased rapidity of the tide, it might in a few years regain its former magnitude. The advantages that would be gained by a work of this nature are obvious, the Hujamree mouth being accessible to larger vessels, and more easily navigated than any other now favoured by the fresh water. It is impossible to calculate what alterations would take place in the lower part of the main river, by turning a

portion of its waters into another channel; but I do not think it would be affected either in its course, depth, or magnitude. Of one thing, however, we may be assured: the Indus can scarcely be in a worse state at its mouths than it is at present; and any change must be for the better.

The Kedywaree leaves the main river sixteen miles below the confluence of the Hujamree, and, after pursuing an irregular course to the WSW., reaches the sea three miles below the entrance of that river, in latitude 24° 6′ 30″ N. The mouth of this small branch is approached by a broad channel, that crosses the upper or northern extremity of the great bank, nearly in a straight line: it is four miles long, from six to eight hundred yards broad, and at high tide has in most places a depth of sixteen or eighteen feet. The shallowest spot is an open space of some extent, about half-way up it, where several channels, some of them partly destroyed, diverge across the bank to the southward and eastward. Here there is not a greater depth than ten feet. In strong westerly winds, the sea breaks across the mouth of this channel, which is not sheltered in the slightest degree from the swell, and even in the fine season the breakers are heavy on the shoals that bound it, whenever the sea-breeze blows rather stronger than usual: last year there was a bar of eight feet stretching across it, near the mouth of the river, but it has since been entirely removed by the inundation, and there is now sixteen and eighteen feet in the same spot.

The Kedywaree mouth is 650 yards wide; but at low tide not more than half that breadth is occupied by the water, the remainder being filled up by a mud flat, projecting from the left bank. On the south side the land, which is extremely depressed, extends from the more elevated part higher up the river, in a broad spit or tongue of soft mud, covered with grass, and at high-water is submerged for several miles. The opposite bank, although considerably higher, is also overflowed at the springs, when the flood has attained its height; and the entrance then presents an appearance so totally different from what it does at other times, that it is difficult to recognize it as the same place: all signs of a river disappear, and nothing is seen but a broad sheet of water, dotted here and there with herds of cattle, and bounded in the distance by a low, indistinct line of banks and villages.

From its mouth, the river runs nearly east, in one long straight reach, for a distance of three miles, and then receives the waters of a small stream, called the Adhearee. At the point of junction its width is not more than 200 yards, but further down it increases to 500; and at high tide there is nowhere less than thirteen feet in the deep channel. On the left bank, a deep muddy swamp, intersected by numerous small creeks, that convey a small portion of fresh water to some of the half

destroyed channels of the great bank, extends from the mouth of the river to the Adhearee: it produces nothing but coarse grass or rushes, and, as before remarked, is submerged at high-water. On the opposite side, the country, although very swampy, is everywhere under cultivation, and scored by innumerable canals, cut to the fields in the interior: besides these, there is also the Rahpoora Creek, which connects this branch with the Hujamree.

Above the junction of the Adhearee, the river winds in a succession of short reaches to the northward; then takes an easterly direction for about two miles, and, turning with a sharp bend to the southward, joins the main river eight miles above its mouth. Throughout this part, its average breadth does not exceed 160 yards, and it presents precisely the same features as are observable in the other branches. The banks are alternately steep and shelving, and the deep channel, in which there is often three or four fathoms, always runs along the former. At the sharp bend, where the river turns suddenly to the southward, a narrow bar extends from the low projecting point across the stream, in a lateral direction, to the opposite bank, and on this, in ordinary tides, there is not a greater depth than five feet. At its confluence, this branch, like all the others now open, is extremely shallow, a broad sandbank having been thrown up along the right bank of the main river, which reaches across it.

The Adhearee leaves the parent stream a short distance below the Kedywaree, and enters that branch after pursuing a course to the WSW. for about two miles and a half: in its passage, it is joined on the right bank by a stream of similar magnitude, called the Moosawaree, which is also an offset from the main river. In the narrowest part, the Adhearee has a breadth of thirty-five yards, its banks are steep on both sides, and at high-water the depth is never less than nine feet. In the Kedywaree the tides are regular at night, but during the day the ebb runs eight, and the flood four hours. The velocity of the former is seldom greater than two miles and a half an hour, and the strength of the latter varies, in different parts of the river, from half a mile to a mile and a half. In the Adhearee the tide rises four feet on the springs, which increases to six feet at the mouth of the river, and to ten at the entrance of the channel leading across the great bank towards it.

The district through which the Kedywaree flows is entirely destitute of trees: near the main river, a few small tamarisk bushes are seen, and this is the only part where they are met with. The soil is in general favourable for the production of rice, and as the land is clear of jungle, a large portion of it has been brought under cultivation: in some places, however, it is extremely sandy, and yields nothing but rushes or reeds. Along the lower part of the river, the few villages visible are

situated some distance inland, but above the junction of the Adhearee they are thickly scattered along the banks, and throughout the adjacent country: at Bello Kookewaree, the largest, the Hakim and principal Zemindars of the district reside.

From the report of the Natives, this small branch has been gradually increasing in magnitude for some years: the last inundation swept away the bar at its mouth, and, besides removing several shoals in the lower part, deepened it considerably. In consequence of this favourable change, it was navigated by large boats for the first time this year; and as the grain was found to be procurable at a cheaper rate than in other parts of the Delta, they will probably resort to it in greater numbers next season; I am, however, inclined to think it will experience before long the same fate as the other rivers, and become choked at its confluence. At present it possesses many advantages over the Hujamree, the only other branch now open; and, in affording access to the main river, presents equal if not superior facilities to the grand embouchure itself. From the sea, the distance through the Adhearee Creek is only ten miles, and at high tide there is not less than nine feet in the shallowest part. All the difficulties of the navigation will disappear when a few buoys are laid down, which is about to be done; and by this route a steamer drawing six or seven feet might enter the main river in two hours, at a spot seven miles above its mouth.

From Hyderabad, the Indus pursues a SSW. direction to the ocean; and, with the exception of two sharp bends, one at the part where the Pinyaree quits it, and the other near the confluence of the Hujamree branch, its course is rather direct. The distance in a straight line is 90 miles, but by the windings of the stream about 102. In the Delta it receives many names: below the Hujamree it is known as the Wanyanee, and near the sea is sometimes called the Munnejah; but this name is only applied to it by a few of the Natives residing on its banks, and is not generally recognized in other parts of the country. From the Hujamree to the deserted bed of the Nair, it receives the appellation of Poput, and above that is called successively the Moograh and Setta, from having once formed a part of those now abandoned rivers. The width of its mouth, the Kookewaree, is nearly a mile, but at low-water a mud flat on the right bank contracts it to 770 yards; on the full and change of the moon the tide rises a foot and a half higher than usual, and then, like all the other mouths, it can scarcely be distinguished, even from a short distance, the country on both sides being inundated for several miles.

When I first examined the Kookewaree mouth, there were three channels leading from it across the great bank outside, which here projects five miles from the land, and that running to the north-west, in

a line parallel to the shore, towards the Kedywaree entrance, was by far the best: the last inundation destroyed all but one, and this, from the greater body of water discharged through it, has attained more than double the width it then had, and is rather deeper. It takes a course across the bank to the south-west, in the same line as the river above, and preserves the same breadth, 1,100 yards, until near the sea, where it gradually widens to a mile and a half; the greater part of this broad space, however, is occupied by an extensive shoal, with only seven or eight feet of water on it at high tide, and the channel becomes divided by it into two smaller ones; these, again, have shoals at their mouths, and by these continual divisions the great channel has no less than four different openings by which it may be entered. The best of these small channels is 500 yards broad at the entrance, but about a mile above, contracts to 130 yards; and it has a depth varying from twelve feet to three and a half fathoms. It is defended from the swell that usually accompanies the sea-breeze by the projecting point of a shoal, and in this respect possesses a great advantage over the others, which are unprotected. Above the large shoal the depth of water in the great channel is ten and twelve feet, and it increases as you approach the mouth of the river to four and a half fathoms; but there is one spot where there is not more than nine feet right across. In the dry season, the current does not run with such velocity as might be expected: during the months of January, February, and March, it never exceeded three miles and a half an hour, and was frequently much less; the flood varied in strength from a quarter to one mile an hour. Outside, the sea rises ten feet on the springs, but this quickly decreases on the bank to six feet, and at the mouth of the river to five feet. Two days after the change of the moon there was a further rise, of a foot and a half; but this, which is always the case in the night, only happened twice in the day, and the country was then flooded for miles. At the entrance of the channel leading to the Kookewaree mouth, the navigation is certainly intricate; but a few buoys or marks would render it sufficiently easy for steamers drawing six or seven feet, and I do not think they would experience any difficulty in entering the main river by it.

About the Kookewaree mouth, extensive alterations have occurred since it was examined last year. The following description of it is taken from my first report, published by order of the Bombay Government; and when compared with the account that has been given of its state at present, shows the extraordinary changes the mouths of the Indus annually undergo:—

"The broad bank that has accumulated before the Kookewaree mouth projects five miles from the land, and is intersected by three channels,

which give egress to the waters of the main river: two of them cross the bank nearly in the same direction as the course of the river that supplies them, but the other, turning to the north-west, runs some distance in a line parallel with the shore, and, after uniting with the channel of the Kedywaree, reaches the sea about five miles to the southward of the Hujamree mouth. The latter, which is the best of the three, is between three and four hundred yards broad, and in the shallowest part has a depth of nine feet. At the lowest state of the tide, the central parts of the bank are elevated twelve feet above the level of the sea, and the beds of the two southern channels from three to four feet. The vast body of water issuing from the main river rushes through them with great impetuosity, and with a noise that, in calm weather, is heard some distance: they then form what may be termed rapids, and, on the extreme edge of the bank, terminate in a fall of about twelve inches."

Of these two channels, only one, as before remarked, now exists, the other being choked at the point of separation; the lower part of it, however, has not been destroyed, and there is still a small quantity of water, forced into it over the bar of sand that has been thrown up. The northern channel, which was five miles long, and formerly connected it with the Kedywaree mouth, has been entirely obliterated, with all the branches it sent off towards the sea: not the slightest trace of them now remains. These changes have been caused by the rapid current of the inundation throwing up a bar, at the point where the channel separated, at an early period of its rise; the water being thus prevented from passing into them, they were subjected, as the swell attained its height, to the action of a feebler current setting off shore across them, from the depressed part of the coast between the Kookewaree and Kedywaree mouths, and quickly filled up. The closing of two of the old outlets, by throwing the whole body of water into the channel leading direct from the river, which was formerly the worst of the three, has increased its depth and breadth considerably, and its bed being now much lower than it was, the rapid described in the first report, with the fall at its mouth, has disappeared.

Near the sea, the Indus attains a magnitude at high tide conformable to the idea generally entertained of it; but at other times, when the fall of water has uncovered the shelving flats, and contracted the width of its bed, it appears inferior in point of size to most of the other large rivers of the Eastern Hemisphere. As before stated, it has been surveyed trigonometrically up to the Teeteeah, a small branch thrown off thirty-five miles from its mouth. In this part its average breadth is about seven hundred yards, but in some places it is much broader, and in others contracted to half that width, by shoals projecting from the old

banks far into its bed. The greatest and least breadth is found abreast of the Mootnee branch, where from 1,060 it decreases to 305 yards; in three or four places besides it is 1,000 yards wide, and there are few reaches where it does not diminish in some parts to 350 or 400 yards. Throughout this portion of the river, the banks in general are alternately steep and shelving, and the former in most cases indicate the side on which the deep channel lies: in a few of the reaches the high bank is formed of several ledges, and then it has a narrow ridge of shallow water running along it.

In general, half the bed of the stream is occupied by a dry flat, extending from the old bank, and the shallowest part of the channel is always found at those spots where you cross between two of them from one side to the other: there are also a few detached shoals, with from three to six feet on them, in the centre of the river. At the bends of the reaches the depth of water is always great, there being frequently six, eight, and even ten fathoms; but the crossing places between the flats are much shallower,—at these spots it varies from thirteen to eighteen feet. Opposite Meeahn, a large fishing village, one mile above the junction of the Kedywaree, a very narrow ridge extends in a lateral direction across the channel from one flat to the other, and there is another close to the Seeahn branch, which projects from the right bank about a mile down the centre of the reach, and connects a line of small shoals: on both these bars there are nine and ten feet at high tide, and they are the shallowest spots in this section of the river. Abreast of the old Mootnee branch, the bed of the stream is rather foul; but one of the channels has from ten to sixteen feet in it, and, although narrow, could easily be navigated.

The strength of the current varies from a mile and a half to two miles and a quarter an hour, and the latter is about the average velocity: it nowhere exceeds three miles and a half, and only flows at that rate in two or three places, where the water is confined to a narrow channel, at the bend of a reach. This part of the river was surveyed in February and March, when it is at its lowest state, and the comparative weakness of the current must be attributed to the diminished quantity of water it discharges in those months. Along the steep banks, especially where they are much indented by the separation of large masses, it sometimes runs in small eddies, but they seldom extend further into the stream than ten or twelve yards: it is only at these places where it is necessary to pay particular attention to the boats in tracking, for the water being thrown off from every small projecting point of the bank, if the track-rope is not brought down from the mast head to the stem before it strikes the bow, they are shot out suddenly into the middle of the stream, and carried down the river. At the junction of the Teeteeah, and opposite

Panjgudjer, a large village, three miles below the Seeahn branch, the eddies are upon a larger scale, and afford some insight into the manner in which the shoals are formed, that eventually effect a change in the course of the river. At the first-named spot, the current strikes against the steep bank a little above the Teeteeah, and is thrown off it, nearly at a right angle, down the middle of the stream. Half a mile below that branch it turns into a small bay or bight, and runs up past it at the rate of about a mile an hour: this upward current prevails over a space 180 yards broad in the *deepest* part of the river, and, at the point where it turns into the bay, the formation of a shoal has already commenced. A short distance below it, there is another similar bight and eddy. The flood does not ascend the main river higher than Unnee, a village ten miles from its mouth, nor even to this distance on the maps; but the influence of the ocean tides is perceptible as high as the Teeteeah, where there is a mean daily rise and fall of four inches. The velocity of the flood varies in different places, but never exceeds a mile an hour; nor does it continue to flow longer than two, or at the utmost three hours.

The country about the mouth of the main river is submerged at high tide for some distance, and continues swampy as high as Betree, a village four miles from the sea, at the head of the first reach. On the left bank, the land, being free from bushes or reeds, and the soil good, is under cultivation to a considerable extent, and affords also excellent pasturage to large herds of buffaloes. Numerous canals, that are filled by every tide, conduct the water to the fields, and there is also a navigable creek of some size about two miles above the entrance of the river, called the Babooloo, which leads into the lower part of the old Gorah branch, and affords a communication by the Goombrah, another large creek, with the Kaher mouth. At Betree, the Mootnee river is not more than three miles distant, and boats can be seen in it very distinctly. Betree was formerly a large town, but from some cause, connected with the alterations of the stream, was gradually deserted, and now does not contain above a dozen scattered huts. Near it there is a small lagoon, eight or ten feet deep, supplied with water by cuts from the main river, which forms a kind of reservoir for the numerous canals that irrigate the grassy plains and rice grounds in the vicinity. Along one side the bank is very steep; and as this peculiarity could only have been produced by a strong current, it is evidently a portion of what was once a connecting branch between the Mootnee and the old Gorah river. On the right bank of the main river, nothing is seen for some miles but a dense mass of reeds, occupying the site of an extensive morass, that was formed some years ago, when the stream deviated from its course more to the eastward; at the lower part of it, a large navigable creek is thrown off, which traverses the swampy land

of the coast in a westerly direction, and reaches the sea by a small channel, that joins the one leading from the Kedywaree mouth near its entrance. Above the thicket of reeds, the country becomes more elevated, and is bare of trees up to the junction of the Kedywaree, where a few small tamarisk bushes are first perceived. Below that branch, there are few villages in the vicinity of the river, but along the course of the Babooloo Creek they are numerous.

The district included between the main river and the Kedywaree branch is called the Kookewaree Purguna, and belongs to Meer Ali Moorad, the Meerpoor Ameer: it is very low, the marshes near the sea, which yield nothing but coarse grass or rushes, occupying half the district, and cannot boast of a single bush. In the upper part, much of the land is cultivated, but even there it is very swampy, a small portion only being sufficiently elevated to be out of the reach of the tide; in general the soil is good, but in some places it is loose and sandy, and a saline incrustation appears on the surface. In this district there are not many villages, and, compared with other parts of the country, it is thinly populated. About twenty years ago the river, which then formed the lower section of the Gorah branch, and was unconnected with the main stream, except by small creeks, flowed through the eastern part of it; but after the grand change had taken place at the head of the Delta, that turned nearly the whole body of water into it, it gradually altered its course still further to the eastward, and opened for itself a new mouth.

On the other side of the river, opposite the lower part of the morass, the Babooloo Creek leads to the old Gorah mouth, situated two miles below the Kookewaree: it has still a width of 850 yards, but is so choked with mud as to be impassable at low tide, even for small boats.

About the Kedywaree, the tamarisk jungle is thin, and intermixed with patches of reeds, but as you advance, it quickly becomes dense, and the babool *(Mimosa Arabica)* appears in large quantities. In this part the river has a most desolate and melancholy appearance; for the country being overrun to the edge of the banks, very few villages or fields are seen from it. The first village of any size is Meeahn, situated on the right bank, about ten miles from the sea, and inhabited entirely by fishermen: it is the principal station of the river fishery, and the man who farms the tax on it resides there;—he pays Rs. 1,600 per annum to the Ameers, and is entitled to one-third of the quantity caught. About Meeahn the soil contains a large portion of sand, and is so loose, that in some places it is thrown up by the wind in heaps eight or ten feet high. Amongst the cultivation, barley appears in small quantities, and there are a few spots cleared for grain and esculent vegetables. At Unnee, a small village about a mile higher up, two

ferry-boats are kept constantly in readiness to convey passengers across the river. Near this village there is a dry bare flat, extending some distance down the stream, in the form of a long spit, which has a deep but narrow inlet between it and the steep bank: this is the favourite haunt of four large alligators, and it was here we saw these monsters for the first time in the Indus. They were of enormous size,—at least twenty-five feet long,—and of that species with a long pointed snout. The Sindian boatmen told us they were much smaller, but more rapacious, higher up the river, and that the large ones, being very sluggish, rarely attack a man. As evidence of this, we saw the stream in the vicinity covered with fishermen, floating fearlessly past them on pots, with their bodies half immersed in the water.

Thirteen miles from the mouth of the river, the destroyed bed of the Mootnee branch is seen: the space filled up forms a triangle, each side about a mile and a half long, and in most places is overrun with bushes. There is still a small creek flowing through the centre of the plain, amongst the irregular furrows left in the bed; but it is separated from the main river at low-water by a broad bar of sand, and as there is not a greater rise of tide even on the springs than two feet, none but the very smallest boats can pass into it. The Mull branch, which is about three miles higher up, appears to have been as large as the Mootnee, and is still more completely choked, the land having attained a more advanced stage of formation. The greater part of its bed is now covered with jungle, or under cultivation, and the remainder is occupied by heaps of loose sand, with pools of water between them, that have no connection. At the point where the banks contract to the breadth preserved by the lower part of the river, it is 700 yards wide, and it is dry for several miles further down. The cause of the changes that have taken place in these two branches, and also of the foul state of the main river in their vicinity, is apparent in the nature of the soil, which about this part of the Delta is extremely loose and sandy.

About a mile above the Mull, a canal was cut two years ago from the main river to that branch below the part that has been destroyed: it was fifteen feet broad, but during the last inundation attained a width of thirty yards, and deepened so much that it is now navigable for small boats at high tide, even in the dry season. The Natives frequently call it the New Mull, and before long it may, perhaps, become a new branch. Nearly opposite the canal is situated the village of Alyabad: it is of some size, and has a market for vegetables, which are produced in large quantities. A short distance above it a low flat projects into the river, from the left bank: the Natives point to this spot as the place where a large ship, called the *Futteh Jung*, that carried forty guns, was wrecked. About two years ago her upper works were visible above

the water, and they succeeded in taking out her masts, and some of the casks from her hold, but she has since sunk in the mud. About Panjgudjer, a large village near the Seeahn branch, the country is more open than in other parts, and sugarcane cultivation is first seen. Panjgudjer means five yards; and the village owes its name to the following circumstance:—Ten or twelve years ago the chief of the district cut a canal near it, to the Mull branch, which was five yards broad: the inundation increased its size and depth so much, that it became a small river, but afterwards filled with sand, and dried up altogether. He then opened another, 300 yards above it, which met with exactly the same fate; and he is now cutting a third, through the bed of the first one. This gives some idea of the continual labour required to keep the canals open, and the fields in the interior properly irrigated.

Above the Seeahn branch, none but small villages are seen, until you arrive at Killan, on the left bank, containing seventy or eighty houses, and inhabited chiefly by Hindoos. About this part of the country, the remains of several destroyed rivers are visible. I traced three—the Nair, the Moograh, and the Killan—several miles inland, and the Natives told me there was another, called the Setta, ten or twelve miles higher up. The bed of the Nair is almost level with the land, and overrun with a dense mass of underwood. It is said to have been a river of considerable size fifteen years ago, flowing from the Buggaur, or great western arm, and to have been connected with the Seeahn branch. The Moograh is rather more than a mile above it, and is only partly filled up, there being numerous hollows still in its bed, that have pools of water in them throughout the dry season. The Natives say it was also thrown off from the Buggaur, and has been in this state for the last fifteen years. About three miles inland, a small branch, called the Huram Khaneh, joined it to the Nair, and the beds of other creeks are visible in every direction in the tract of country between them. The Killan is on the opposite side of the river, and in the centre of its bed there is now a large village, named after it, surrounded with fields and groves. A short distance beyond the village it appears like a long straight glade, cut through a forest, and at one spot there is a small lake left by the inundation, enclosed between high, irregular banks, overhung with trees, placed in most picturesque groups, amongst which the mango, tamarind, and plantain are conspicuous. This river appears to have formed a connecting branch between the Moograh and Setta.

The Teeteeah quits the Indus thirty-five miles from the sea, and joins the Richel river near its mouth: it is not more than thirty yards broad, and has not a greater depth in many places, during the dry season, than a foot and a half or two feet. There are two large villages near its confluence: one of them, Koteree, is pleasantly situated in a grove of

fruit trees, and the other, Bemun-jo-Pooro, is the residence of the Kardar of the district. The main river has not as yet been surveyed above this small branch, but it has been examined by Lieutenant Wood, of the Indian Navy, up to Hyderabad, from whose reports the following description of that portion of it has been drawn up.

Between the Teeteeah and Tatta shallows abound, and the navigation becomes intricate: in some spots the river is very foul, and wanders in many channels over the whole extent of its inundation bed. They are narrow and winding, and, in general, not more than one of them is navigable. In the bends of the reaches, their depth is often very great; but in other parts they have not more than nine or ten feet in them. They also change their direction with great rapidity, for in two instances the fair channel, which ran close along the left bank when the *Indus* steamer passed up the river, was found two months afterwards to have shifted its position over to the other side. At the commencement of the dry season, the current runs in some places at the rate of five miles an hour, and its average velocity is about three and a half. In this part of the river the banks are alternately shelving and steep, and marks of the alterations that have taken place in its course are everywhere visible: in some places they have evidently at no distant period formed shoals in its bed, and at others they are fast giving way before the strength of the current. The country is thinly populated, and in general covered with thick tamarisk jungle, occasionally mixed with the babool. Few villages are met with, and the largest does not contain a hundred houses. At Ooplaun, a few miles above the Teeteeah, but on the other side of the river, there are two large canals, leading, one to Shahbunder, and the other to Mughribee. They are filled about the middle of July, and navigable for small boats to those towns, until the final fall of the river takes place, in the last week of September. Abreast of Tatta, the banks of the river are a mile and a quarter apart; but the water does not occupy above one-third of this space, the remainder being filled up by an extensive dry shoal. The Buggaur, or great western arm, was formerly thrown off four miles below that city, and the sandbank that has been cast up at its confluence now forms the right bank of the river.

Above Tatta, the bed of the river in many places is full of small shoals, and the intricacy of the navigation increases: the banks are also frequently low on both sides, and no longer indicate, as in the lower part, where the deepest water is to be found. At the village of Kuddee, its width is 980 yards, but at the angle of the reach in which it is situated, not more than 390 yards. Abreast of the Pinyaree it increases to 760 yards, and at Trikul, a few miles below Hyderabad, again contracts to 380 yards. The strength of the current is considerably diminished, and there are very few places where its velocity is greater

than three miles an hour. In this section of the river, the depth of water has not yet been fully ascertained in every part; but in the lines of soundings taken across the shallows, at certain distances, seven and a half and eight and a half feet have always been found in some part. The only branch thrown off by the Indus in this part of its course is the Pinyaree, which quits it at Bunna, a village half-way between Tatta and Hyderabad, and in the dry season is not more than forty yards wide. The stream does not extend many miles from its efflux, and its waters are clear and stagnant. Near Trikul, a small creek communicates with the Fullailee branch, but it is only filled by the inundation, and then insulates the land on which the capital is built. A short distance above Tatta, and on the same side, the first hill is seen: it is low, and of sandstone formation. From this place the Shikargahs, or hunting forests of the Ameers, extend on both sides of the river to the capital: they are composed principally of large mimosa and tamarisk trees, and are so overrun with thick underwood as to be almost impervious. Most of the low sandy tracts between them are thinly covered with bushes, and very little cultivation is seen until you arrive at Hyderabad, when there are a few fields and gardens. From that city, a range of low table-hills, about 200 feet high, extends along the left bank to Trikul, twelve miles below it, and there is also a small group at Jerruk, eight miles further down.

The local divisions of the Indus, which have been entirely disregarded by those who have written about it, merit notice; for in some instances a knowledge of them will prove practically useful. The confusion apparent in many of the accounts descriptive of the general character and features of the river must be attributed to the authors not having paid sufficient attention to this subject; for being ignorant of the causes that have led the Natives to separate it into sections, and distinguish each by an appropriate appellation, they have in many instances made the mistake of supposing that these names denoted distinct branches. Thus the Seeahn has been described as flowing into the Hujamree at Vikkur, whereas the Seeahn and Hujamree do not possess, with regard to each other, the relation of two separate branches, but are merely local appellations, applied to different portions of the same river.

The terms employed to designate the different sections are often derived from some physical peculiarity, natural or artificial, or from some tradition, referring to the locality; but they are most frequently named after the district through which they flow, or the principal tribe that occupies it: examples of all these different names are met with in Sahoo, Seeahn, Poput, and Moograh. The first term (Sahoo) means good; and is applied to that portion of the river so called, because the banks are composed of firmer materials, and the stream is less liable to

vary, than in the sections immediately below it. Seeahn is taken from the district through which that branch flows; Moograh is derived from a Belooch tribe that formerly occupied the country about the old river of that name; and Poput, which in the Sindian language means a parrot, from a tradition, that in former times the boatmen always sacrificed one of these birds, as an offering to a celebrated Peer or saint, on entering this division of the river, the navigation of which was dangerous and perplexing. The following table exhibits the different sections below Hyderabad, with their limits, and the derivation of their names; and will, perhaps, render this naturally complicated subject more intelligible :—

Names.	Limits.	Derivation of Names.
Main trunk of Sahoo, the Indus.	From a village close to Hyderabad to the first range of hills above Tatta, 40 miles.	From a word signifying good.
Main trunk of Setta, the river called in the late Maps the Sata, or Great Eastern Arm.	From the latter point to the Teeteeah branch, 28 miles.	From once having formed a part of the old Setta river.
Main trunk of Moograh.	From the Teeteeah to the bed of the old Nair river, 5½ miles.	From having once formed a part of the Moograh, which was called after a tribe of that name.
Ditto of Poput....	From the Nair to the confluence of the Seeahn, 4½ miles.	From a tradition.
Ditto of Wanyanee, or Banyanee.	From the latter point to its mouth, 24 miles.	From the number of Hindoos, of the Banyan caste, resident on its banks.
Hujamree, the Seeahn branch.	From point of junction to Vikkur, 20 miles.	From the district through which it flows.
Hujamree.....	From Vikkur to its mouth, 20 miles.	From a drunken Hujam, or barber, having been drowned in attempting to swim across it.

Of the different sections of the main river, three of them, the Poput, Moograh, and Setta, possess the same physical peculiarities; and a correct knowledge of them will be found, in a practical point of view, of some importance. It is in this part of the Indus that the destroying process is continually going on, which causes so much vacillation in its course amongst the subordinate branches in the Delta, and produces those frequent changes which render the navigation so uncertain. In the division above it (the Sahoo) this unsteady stream is confined to a permanent channel by the firmness of the soil, and the existence of a low, but, in this particular, important range of hills, until it passes into the Setta section, where the destructive operations commence. The causes that produce the frequent alterations observable throughout this part of

the river are seen in the nature of the soil, and the velocity of the current at particular places. The soil is loose, light, and easily soluble, being composed of fine micaceous sand, mixed with a small quantity of clay. It is apparently distributed throughout the Delta in extensive patches, being met with, at intervals, along the whole course of the river below Hyderabad, and in all the branches I have examined. Wherever it prevails, but especially in the three sections I have attempted to describe, the destruction of the banks continues without intermission; for in the dry season, when the level of the river is low, the current, in flowing along those that are high and steep, is constantly exerting itself to undermine their bases, which soon causes the upper portion to slide into the water. In this manner the navigable channel is often partially filled up, and forced to shift its position, by the large masses of soil that fall into it. This phenomenon is of such frequent occurrence, that at night, when the range of sound is most extensive, as many as thirteen reports, produced by the precipitation of pieces of the bank into the water, have been counted in the short space of a minute. Dr. Heddle, in his valuable Report on the Indus, when speaking of the effect this peculiar action has on the course of the river, relates a circumstance which shows the extent to which it sometimes takes place. At a village where he came to for the night, a large portion of the bank, measuring 400 feet in length, and nearly 100 feet in breadth, suddenly gave way, a short distance ahead of his boat. The noise attending its fall resembled that of a large body of water rushing over a precipice, and the agitation of the river that followed caused the boat to roll as if in a heavy sea. A few huts were precipitated with it, and it was with difficulty the property in some of them was saved. On the following morning, the part of the channel into which the bank had fallen, where, prior to the accident, there was a depth of three fathoms, was converted into a shoal, partly above water, and the boat, in getting under weigh, was obliged to make a considerable détour to clear it. When it is considered that so many reports, produced by similar causes, may be heard in the space of a minute, some idea may be formed of the rapidity and extent of the destructive action constantly going on in this part of the Indus: the alterations are, in fact, so frequent, and the position of the deep channel fluctuates to such a degree, that a pilot is of little use, further than by the knowledge he possesses of the character of the stream in the different sections, and of the extensive local changes that are continually taking place.

In the upper and lower parts of the Wanyanee section, where the banks are comparatively permanent, the soil is a stiff clay; but in the centre, about the Old Mull and Mootnee branches, a large tract occurs, of the same sandy, incoherent kind that is met with in the Moograh

and Poput divisions; and similar physical peculiarities are observed in the character of the river.

Below Hyderabad, the navigation of the Indus is very intricate in some places, but, with proper precautions, unattended with danger, or any great risk to property: unaided by steam, it would always be extremely tedious, and even with that power applied to it, the time required for ascending the river will not be shortened so much as is anticipated; for it is evident, from the foul state of its bed, and the strength of the current in many parts, frequent delays will occur. From the continued alterations that take place in the channels, it is often difficult to find and follow them, and the boatmen seldom possess a sufficient knowledge of their direction to act as pilots: in dropping down the river in the dry season, they always have a small boat sounding ahead; but even with this precaution they often run aground where a few months before there had been abundance of water, and much difficulty is at times experienced in getting into the deep channel again. From the prevalence of strong northerly winds in the dry season, steamers are better adapted for navigating the Indus than sailing vessels; and it will be seen, from the description that has been given of the main stream, that one drawing six or seven feet might enter it by its own mouth, the Kookewaree, or by passing through the Kedywaree branch, and ascend it as high as the Teeteeah without difficulty, even when it is in its lowest state. The mouths, it is true, undergo great changes annually, and this will always render them difficult of access; but it appears to me, that as they must always discharge the same body of water, the channels, although they may alter their position, will generally be of the same average depth. Although steamers of the draft I have mentioned may navigate the river up to the Teeteeah, I do not think any that draw more than four, or at the utmost five feet, will be able to ascend it to Hyderabad in the dry season. In sounding across it in several places below that city, no greater depth was found than seven and a half and eight and a half feet; and this being the case, it is probable that a continuous channel does not exist of more than five or six feet; for it appears to be a peculiarity of this river to throw up narrow bars or ridges, stretching obliquely across it from bank to bank. Two have been discovered in the main stream, in a distance of thirty-five miles, and in a part that is both deeper, and more free from shoals than any other: they are also met with in the Kedywaree, and in the Koree, or eastern branch, they are more numerous, and on a much larger scale. Steamers, built expressly for the navigation of the Indus, ought to be constructed with flat bottoms, and if it is intended to employ them as tugs, they should possess a speed of at least nine miles an hour.

On the banks of the river, fuel is scarce, and, except in the Shikargahs

or game preserves, there is no large wood : in those spots it is abundant, and, if permission could be obtained to take it away, no scarcity would be experienced, in the event of steamers being introduced, for some years. It is not, however, likely that the Ameers will grant any request that may be made to them on this point; for in all the late treaties there was nothing about which they showed so much anxiety as the preservation of their hunting forests. In the Delta, the tamarisk is the only resource : it seldom attains a great height or thickness, and, as a single bush, affords but few billets;—it requires considerable time to cut down a cargo. During the late trip of the *Indus* steamer the wood of the babool *(Mimosa Arabica)* was found to answer admirably, and that of the Tan or mangrove was equally good : the latter, however, is scarce, the tree being only found near the sea. At present, if proper arrangements were made, a sufficient supply of fuel might, perhaps, be commanded to keep two small steamers constantly plying.

Sailing vessels, ascending the river in the dry season, when the winds are blowing strong down it, can only proceed by tracking, and seldom make a greater progress than twelve, or at the utmost fourteen, miles a day ; this method, although extremely tedious, is well suited to the peculiarities of the Indus, and, as now performed, admits of little or no improvement. The only danger is experienced in the bends of the river, where the current sometimes runs in strong eddies, and is continually exerting its influence to undermine the banks. If a boat is driven with force against the steep bank in these places, and a large mass becomes detached by the concussion, which sometimes happens, her destruction is almost inevitable.

The form of the doondee, or flat-bottomed boat of the country, is well adapted to the navigation of the river, and there is no kind of vessel better calculated for the transport of goods. Many of the largest are eighty feet long, and sixty tons burthen : they have no keel, and both the bow and stern, which are perfectly flat, rise from the water at an angle of about thirty degrees. They are very high abaft, where there is a small deck, and are generally steered with a long curved oar. The boatmen are very expert in handling it, and frequently propel the doondee with it alone. These vessels have also a broad, triangular shaped rudder, which, as there is no stern-post, is hung over the slanting stern, and moved by ropes on each side. The masts are stepped on a plank, secured at each end to the gunwale, and are supported entirely by ropes. The aftersail is square, and very large ; the foresail of a lateen shape ; and, in order to give them greater power, they are usually hoisted abaft the mast. When laden, these vessels do not draw more than four feet. The chief defect in their construction is the small power possessed by the rudder, which arises from the great

breadth of the stern below the water-line. This might easily be remedied; but any great deviation from the general principle on which they are constructed would not be an improvement. From the scarcity of large trees, and the high price of teak plank, the workmen are obliged to use the small wood of the country in building their boats, and most of them are formed of innumerable pieces, fastened by bamboo pegs, nails being only employed to secure the knees and ribs. They are, in consequence, liable to many accidents that would not affect their safety if they were constructed of better materials; and in the lower part of the river there are about forty or fifty lost annually. Doondees are hired at so much per kurwar (about three quarters of a ton), in proportion to the length of the trip, and the rates, as now charged, are as follow :—

From Bunder Vikkur	to Tatta.....	Rs.	1	12	0			per kurwar.
Ditto	to Hyderabad..		2	8	0	to 3	0	0 „
From Hyderabad	to Sehwan		2	4	0	to 3	0	0 „
Ditto	to Larkhana.....		4	0	0	to 6	0	0 „
Ditto	to Shikarpoor.....		6	0	0	to 6	8	0 „

These rates are for ascending the stream in the dry season. The crew attached to each boat is never large enough to manage her properly, and extra men must always be hired, who are paid and found in provisions by the employer.

The jumtees, or state barges of the Ameers, are of the same form as the other flat-bottomed boats, and some of them are large and commodious. I saw one with four masts, that measured ninety feet in length, and the Natives told me there was another at Hyderabad twenty feet longer. These vessels are constructed entirely of teak, brought from the Malabar Coast, and are much better built than any other description of boat on the Indus. They have generally two large open cabins, or rather pavilions, on deck, elaborately carved all over, and furnished on all sides with silk curtains : the foremost one, being considered the post of honour, is always occupied by the Ameers; and that aft, which is the largest, is devoted to the use of the chiefs and followers in attendance. In going down the river against the wind, they are impelled by four or six oars, each of them so large as to require five men to pull it; and on these occasions they are always gaily decorated with flags and streamers innumerable.

The periodical rise of the Indus has been ascertained by Lieutenant Wood, who was directed to remain in Sind for that purpose, and as his observations have already been published, I shall confine my remarks on it to the effect it has in the lower part of the Delta. At Hyderabad it was found to be fifteen feet three inches. Above the Delta, the water only rises to the level of the banks when the swell has attained its height, but a short distance below Tatta overflows them, although not to any

great extent. At the confluence of the Seeahn, twenty-two miles from the sea, where the banks are eleven feet high, the rise is thirteen feet, and the whole country below this is inundated. It decreases towards the sea in proportion to the slope of the land, for at Vikkur it is only six feet above the high-water mark of the ocean tides; and the low flats on the coast, which are often flooded, even in the dry season, are seldom covered to a greater depth than two feet. None of the permanent villages are removed during the continuance of the swell, but are merely defended from the water by a bank of earth thrown up around them; and the cattle are turned out, to roam about in search of food. Throughout the Delta the water is retained, and the supply to the different fields regulated, by dykes thrown up along the banks of the rivers, which in some places are six feet high, and extend in a continuous line for a distance of forty miles. They also serve the Natives as a road. During the swell, the flood tide causes a heavy bore at the mouths of most of the rivers; but it quickly loses its force, and does not ascend them to a greater height than six or seven miles.

Although the water of the Indus is extremely muddy in appearance, the quantity of soil suspended in it is not so great as might be expected: when reduced to the consistence of stiff mud, or the same state in which it is deposited on the banks, I found it at the Kookewâree mouth to be three cubic inches in a cubic foot of water; but the mean of several experiments made above the influence of the ocean tides gave only two and a half, and this is, I think, about the average quantity in the dry season. During the inundation the amount is much larger, being four cubic inches; which is no doubt caused by the greater strength of the current at that period. On examining the soil obtained from the water, Dr. Heddle found it to be composed of argile, or fine clay, and carbonate of lime, with a quantity of mica in the form of fine sand; it also contains a portion of common salt, with carbonate of soda and nitre. The water, besides the mud suspended, holds in solution a proportion of saline ingredients, principally common salt, carbonate of soda, and nitrate of potash; but the amount is not so great as to render it at all disagreeable to the palate. An idea prevails very generally amongst the Natives of Sind, that the water of the Indus is unwholesome.

The changes that have occurred in the branches of the Delta within the last twenty years are most remarkable, and exhibit the inconstant character of this celebrated river in the strongest light. I was fortunately able to obtain some information respecting them, but as few of the Natives possess any knowledge of the country beyond the immediate vicinity of their own villages, I could not in some instances trace the course of the destroyed rivers to my own satisfaction. About twenty years ago, the main stream of the Indus flowed to the sea by the

Buggaur, and the Setta or Great Eastern Arm of the maps, which at present forms the lower part of it, had no existence :* this fact is asserted by all the Natives, and is corroborated by the report of the gentlemen attached to Mr. Smith's Mission, who found the river in 1809 emptying itself by the Phittee or westernmost mouth. At this period the Buggaur threw off numerous branches, and some of them were navigable for large vessels. The Setta was the first that quitted it below Tatta: it was not very broad; and after pursuing the same course as at present for a few miles, turned more to the eastward, and traversed the country between the Mull and Pinyaree in a SSE. line. Ten or twelve miles further down, the Buggaur sent off a larger branch, and this divided into two streams, a short distance below its confluence: the Moograh, which was connected with the Setta by the Killan river, was one of them, and the Nair the other,—the latter appears to have emptied itself into the Mull branch. Between the Seer and Mull mouths, a distance of thirty-five miles, no rivers are now discharged, but there are several salt-water creeks, or rather inlets, running eight or ten miles into the land. The Setta and Moograh must have reached the sea at this part of the coast, and these creeks are in all probability the remains of their mouths and lower parts. The account given by the Natives of the changes that have occurred in the other branches of the Buggaur is extremely vague and unsatisfactory: throughout the line of the Hujamree, portions of destroyed rivers are met with everywhere; but the clue afforded by them is so slight, that it is not sufficient to trace their entire courses with any degree of accuracy; and until further information is obtained on the subject I shall not attempt it.

From the report of the Natives, it appears that a very high inundation sometimes occurs in Sind, which invariably causes great alterations in the lower part of the Indus: it is said to happen once in about half a century. About eighteen years ago† one of these floods came down: the river rose several feet above its usual height during the swell, and the strength of the current was much greater than in ordinary seasons; whole villages were swept away from the banks, and in many parts of the country the crops were completely destroyed. On this occasion the river altered so much about the part where the Setta was thrown off, that a larger body of water than usual was forced into that stream, and it increased in size considerably. The change became greater every successive year, until at last the main river turned into the Setta,

* In some old maps I obtained at Bombay, the Setta is laid down as a small creek, and pursues quite a different course from what the main river does at present.

† It is almost impossible to obtain the exact date of any occurrence in Sind from the Natives; but if their assertions are correct, this flood must have happened in 1819, the year in which the great earthquake was experienced in Kutch.

and abandoned the Buggaur altogether. It did not, however, pursue the same course as that branch for many miles, but forced a passage for itself, nearly in a straight line, through several creeks, across the Moograh and Nair, into the lower part of the Gorah river, and shortly after opened a new mouth, the present Kookewaree. Before this happened, many of the branches were navigable for large ships, and at an earlier period were frequented both by the Company's cruisers and merchant vessels. The rulers of Sind had also a fleet of fifteen ships stationed at Shahbunder, which owes its name (the King's Port) to that circumstance; and it is mentioned in the histories of the country, that they sometimes ascended the river as high as Tatta. The line of route they pursued from the sea to Shahbunder is accurately pointed out by the Natives: they entered by the Richel, the only accessible mouth, and passing into the Hujamree, through what is now the Kedywaree Creek, ascended that river to a part about ten miles above Vikkur, where it joined the Bugana, or, as it is now called, the Mull, on which branch, but considerably lower down, Shahbunder was situated. They could also pass into the Gorah river from the Hujamree, and navigate it down to Betree, then a large town. At this period the Richel mouth, which is now nearly closed by a sandbank, had a depth of four fathoms, and there was a high beacon erected on the south point, to facilitate the navigation. This, from its resemblance to a minaret, the Natives called Moonara. No trace of it now remains, but its name has been retained in that of a village built near its site. Such are the alterations that have occurred in the lower part of the Indus within the last eighteen years.

Having completed the description of the rivers I have examined, and given some account of the changes they have undergone, I shall now proceed to offer a few general remarks on the Delta and its inhabitants. The country on the sea coast is submerged at high tide for a distance of three or four miles, and continues swampy about two miles further inland. These marshy tracts, which in most places are destitute of bushes, afford excellent pasturage for large herds of buffaloes, and on that account are considered by the peasantry as valuable property. Notwithstanding their dreariness, they often present a greater appearance of animation than is observed in more populous parts of the country; for every creek is full of boats, and men are seen in every direction, cutting grass for the cattle of the distant villages. It is of a coarse, thorny kind, that grows to the height of sixteen or eighteen inches, and is only obtained close to the sea, for a short distance inland the small rush springs up in such abundance that it is impossible to separate it. Being impregnated with salt, it is preferred by the cattle to the herbage of the upper parts of the country, and the Natives say they thrive on it much better. The districts immediately

above these swampy plains are the most productive in the Delta, and a great part of the land being free from jungle, which here only appears in patches, is easily brought under cultivation. These districts terminate about twelve miles from the sea, and the dense mass of jungle with which the whole of Upper Sind is overrun commences. It is principally composed of the tamarisk bush, mixed here and there with the babool (*Mimosa Arabica*); but the latter in some places is met with in large quantities. The mangrove is only seen on the coast, where there are also a few saline shrubs, of the same species as those so common on the shores of Arabia. The soil in general is composed of clay, mixed more or less with sand, and contains a large quantity of salt, which frequently appears in a thin crust on the surface. In a few spots it is a stiff, tenacious clay, that hardens when exposed to the sun, and turns white; but in the upper half of the Delta, where it contains a very large proportion of sand, it crumbles into a fine dust, and in strong winds rises in clouds that obscure the atmosphere, and penetrates everything. The soil of Lower Sind is not in fact so rich as has been represented; for although a large quantity of rice is produced, it is all of a very coarse, inferior quality, and the esculent vegetables are small and tasteless. Much of the land lies waste and neglected; and in many places, spots that have been already cleared for tillage have been allowed to return to a state of nature. With a little labour, they might again be rendered available for agricultural purposes; but the system pursued by the Government and its agents towards the peasantry discourages every effort, and paralyzes all exertion. Besides rice, which is of two kinds, white and red, barley, moong, and bajree, are raised in the dry season, by irrigating the fields from cuts to the river, and the sugarcane and castor oil plant are cultivated to some extent. There are a few fruit trees in the upper part of the Delta, such as the mango, plantain, and tamarind; but the fruit is inferior.

For the winter season, the climate of the Delta is delightful, being cool, dry, and bracing; the temperature ranges from 45° to 76°, and during the day is most agreeable. Fogs sometimes occur, but they are by no means prevalent, and quickly dissipate as the sun rises. In the summer months the heat is excessive, and less rain falls than might be expected. During the inundation the climate is very unhealthy: fevers, dysentry, and agues prevail; and all the inhabitants that reside constantly in the Delta have an appearance of premature old age, which is doubtless to be ascribed to this cause. None of the chiefs or wealthy landholders remain there during the hot months, but repair to Hyderabad, and do not return to their estates until the water left by the swell has dried up.

The population of the Delta is miscellaneous, being composed of

Hindoos and Jutts, with a mixture of various tribes from the adjacent countries. Besides Beloochees and Jokeeas from the western side of the Indus, many parties are met with that have emigrated at different periods from Kutch; and there are also a few villages inhabited by Puthans, and people from Afghanistan, the Punjaub, and Bhikaneer. The Beloochees are generally fine-looking men, with a Jewish cast of countenance, aquiline nose, high forehead, and large expressive eyes: in stature they are somewhat above the middle height, and their make bespeaks more activity than muscular strength. They are a rapacious, vindictive, and dissolute race; and, as far as I have been able to form an opinion of them, appear to possess few good qualities. The soldiers have a more martial appearance than most Asiatics, and are undoubtedly brave; but they would have no chance against regular troops, from the total absence of discipline amongst them. This tribe, which conquered Sind about sixty years ago, is composed of many small sub-divisions, or rather families; but none claim or exercise any superiority over the rest, and they are found mixed together throughout the country. The largest and most powerful is the Lugaree, whose Chief resides some distance above Hyderabad. There is no peculiarity of physiognomy observable in the Jutts, to distinguish them as a distinct people: amongst them you see every cast of countenance that denotes ignorance and stupidity, and they are now perhaps the most miserable, superstitious, and degraded race in India. They are a branch from the Jits or Jates, a Hindoo tribe that anciently occupied the country about the upper part of the Indus, and were converted to the Mahomedan faith on the subversion of the Hindoo dynasty in Sind. The Jokeeas belong to a Rajpoot tribe that formerly governed the country, but in the Delta they are not numerous. The Hindoos are of the Lowana and Bhatia castes, and do not differ from those of British India: patient, persevering, and industrious, they are in possession of nearly all the trade of the country, and form by far the most wealthy class in it. All those following any occupation on the river are called Mohanas. The men that navigate the doondees are generally Natives of the Punjaub, but the name by which they are distinguished in Sind is unknown there. In enumerating the tribes of the Delta, the Syuds and Fakeers, or religious mendicants, must not be omitted, since they form a large proportion of its population, and may be considered almost a distinct class. Their number is estimated by the Sindians at 100,000, which is perhaps somewhat exaggerated: it must, however, be considerable, for large parties are frequently encountered travelling about to collect alms, and there are many villages wholly inhabited by them. The Syuds, or descendants of the Prophet, are generally shrewd and intelligent men, and there is no

peculiarity about them, either of dress or appearance, by which they can be distinguished from the wealthiest class of Musulman inhabitants. Most of them possess grants of land, and they also derive a considerable revenue from the offerings of the pious. These impostors had formerly great influence with the rulers of the country; but it is now on the wane, the present Ameers not being so bigoted and superstitious as their predecessors. It will be fortunate for the country when it ceases to be felt altogether; for they add by their exactions to the misery of the lower classes, without conferring the slightest benefit on them in return. The Fakeers pursue an erratic life, subsist entirely on the charity of individuals, and disfigure their bodies in the same manner as those in other parts of India. Their principal place of resort is the shrine of Lal Shahbaz, at Sehwan, where there is seldom less than five or six thousand collected, who receive their food daily from the temple.

The condition of the lower classes of the peasantry in Sind is truly wretched: unable at times to obtain a sufficiency of food and clothing for themselves, it is quite out of their power to provide for the wants of a wife and family, and they never marry. The consequence of this miserable state of existence may easily be imagined: theft is common, and many of the villages are full of public women of the lowest description, living in a state of hopeless poverty and disease. Very few fine-looking men are seen in the Delta, and the women are no where so destitute of personal charms: they are ugly and haggard even in youth, which is to be attributed to the hardships they undergo in early life, and the unhealthiness of the country during the swell. Smoking is universally indulged in to excess, and the strong spirit distilled from Goor is in great request amongst all who can afford to purchase it. The lower orders use Bhang, an intoxicating and very deleterious drug obtained from hemp, in large quantities. In most of the towns there are numerous dancing girls, and the only amusement of the inhabitants consists in smoking their capacious Hookas, and drinking until they are intoxicated, whilst these women exhibit their indecent postures before them. The pleasures of the Sindian are in fact entirely sensual, and his rank in the scale of civilization is consequently very low; but when we reflect on the despotic nature of the Government under which he lives, and the many acts of tyranny that daily occur to embitter his existence, this cannot excite surprise. The Government of the Ameers is unpopular with nearly all classes of their subjects, and the peasantry do not hesitate to express their hatred to the reigning family, with their wishes for its downfal, when there are no Beloochees present. They have a strong impression that the English are about to occupy Sind, and their delight is unbounded at the

idea: if such an event should occur, it would be hailed by them as the most auspicious moment of their lives, and I have no doubt they would render every assistance in their power to facilitate it.

Amongst the animals of Sind, the camel, both from its size and utility, ranks first in importance. Very few are seen near the sea coast, but in the upper part of the Delta droves of forty or fifty are frequently passed. They are rather smaller and lighter in the limbs than those of Arabia, and, from being better fed, are much finer looking animals. The horned cattle do not differ from those of India. Horses of a diminutive breed are met with at every village in great numbers: a few are sent annually to Bombay from the country about Darajah. In the thick jungles, wild hogs abound; and there is also an animal very common in the interior, which, from the description, must be the elk. Deer are also frequently met with. The country is infested with jackals, who prowl about day and night, and are very ravenous: they have been known on several occasions to attack men. A lynx and a leopard were seen, and tiger cats three or four times; but none of these animals are numerous. Hares are abundant everywhere. The dogs are large, and so ferocious that it is dangerous for a stranger to approach them, without being accompanied by some of the inhabitants.

It is almost impossible to convey an idea of the vast quantities of waterfowl that frequent the rivers and the swamps of the sea coast: the latter are literally covered. The varieties of the wild duck are innumerable; and geese, pelicans, flamingoes, spoonbills, storks, cranes, royal and grey curlews, herons, snipes, with several other kinds, are seen in immense numbers. The Egyptian ibis is common. There is also a large bird, about the size of a turkey, called the Kullum, which only makes its appearance in the winter mouths, and is found both in wet and dry situations: I have seen the fields actually covered with them. In the thick jungles of the upper part of the Delta, partridges, quails, and plovers are equally numerous. Amongst the small birds are some with very rich plumage, which I think are unknown. The domestic fowl is remarkably fine, and generally of the kind with black bones and skin.

The fish obtained in the greatest quantity is the delicious Pulla: it is of a most delicate flavour, but so rich, from the quantity of oil it contains, that some people cannot eat it. The mullet is also abundant, and attains a large size. Besides these, there are several other kinds that are common to most of the Indian rivers. Otters and turtles abound everywhere, and porpoises are seen as high as Tatta. There are also great numbers of water snakes, of a large size.

The Koree or eastern branch of the Indus was surveyed in 1833, and as it exhibits some physical peculiarities not observable in any of the

other rivers, I shall conclude this paper with a short description of it. The Koree, which separates Sind from Kutch, once formed the lower part of the Fullailee, and it also received the waters of a large branch thrown off by the main river during the inundation near Bukkur: the beds of both these branches are now partially filled up throughout the whole line of their course, and the portion of water they receive during the swell is prevented from passing into the Koree by bunds that have been thrown across them by the Sindians. The alterations caused by the earthquake of 1819 increased its magnitude so much, that it became a small gulf or arm of the sea, and it now gives a better idea of a great river than any other branch of the Indus. At its mouth it is six miles wide, and the Sind Coast, being very low, is not visible from the Kutch side: it begins to contract at Kotaseer, and continues to do so up to Lukput, a fortified town, situated thirty-nine miles from the sea, where it diminishes to a narrow stream 200 yards wide, and is so shallow that, if the bottom were firm, it might be forded at low-water in several places without difficulty. The broad bank fronting the coast of the Delta extends right across the entrance, and terminates a short distance below it, on the shores of Kutch. In many places the sand-banks are dry at low tide, and the sea outside them is very shallow, there not being a greater depth than five fathoms eight miles from the land. Two channels, the Adhearee and Seer, lead out of the river across this mass of shoals: they are broad and deep, having a depth of twenty feet in the shallowest part, which is on the bar at their mouths. The former runs close along the Kutch shore, but the latter pursues a course through the centre of the shoals, and, although not so easily navigated, on account of the number of shallow patches in it, is always used by boats proceeding to the northward. Above the part where these two channels separate, the river for some miles has a depth of seven and eight, and in some places fourteen fathoms, and there are no sandbanks until you arrive at Kotaseer. Near this town, the bed of the stream is extremely foul, and vessels of any size are prevented from ascending any higher by several shallow bars or ridges that reach across it in a lateral direction from side to side. A short distance above these, extensive flats of soft mud occupy half the breadth of the river, and the channels being narrow and intricate, the difficulty of the navigation increases every mile as you advance towards Lukput.

During the neaps, the tides are very irregular: they run at a rate of from two to three miles, vary in duration from four to eight hours, and rise sometimes nine feet, but at others only six feet. On the springs, they are alternately weak and strong, and in the latter case, when they have a velocity of six miles, they continue to flow for a period of eight hours. This is caused by the sudden influx of water from the ocean

during the night, when they attain their greatest height. At Kotaseer there is a rise and fall of ten feet, and at the mouth of the river it increases to thirteen; but at Lukput it does not exceed four feet. The Koree is navigable for vessels drawing sixteen feet to within a short distance of Kotaseer, but they could not proceed any higher, on account of the bars stretching across the stream from side to side. Even the country boats that frequent it, which seldom draw more than six or seven feet, are obliged to remain at that town, and send up their cargoes to Lukput in doondees.

About the mouth of this branch, the land is low and swampy: on the Sind side, it is overrun with a dense mass of stunted mangrove bushes, and overflowed by every tide; the Kutch shore, for some miles, is a mere ridge of loose sand, thrown up between the river and a broad tract of marsh land, intersected with small creeks, which extend from Kotaseer to Jukkow. None of these creeks have any communication with the Koree; but the largest, which reaches the sea a few miles below its mouth, affords a passage for the boats of the country to Jukkow, a seaport town of some importance on the NW. extremity of Kutch. Along that part of the sandy ridge exposed to the action of the sea, the beach is literally covered with heaps of clay balls, that have apparently been formed by the waves rolling the small pieces of clay, detached from the banks, and thrown up here, on the smooth, firm sand.

Above the mouth of the river, the country on the Sind side, up to Lukput, is low and flat, and thinly covered with saline shrubs, or the decayed trunks of bushes that have been destroyed by the salt water. This part of the Delta is evidently depressed below the level of the rest, which is to be attributed to the effects of the earthquake of 1819; and being from this cause partially flooded at times to a great extent, even in the dry season, is uninhabited. The soil is everywhere good: it is composed of soft clay, with a very small mixture of sand; but from the want of fresh water, none of the land has been brought under cultivation on the Kutch side. The country above Kotaseer presents to the view a confused mass of rugged broken hills, evidently of volcanic formation, which at a distance assume the appearance of moderately elevated table-land: here and there the small spurs sent off from them project in low promontories into the river, and the rocks extend under water halfway across its bed. The only mountains seen are the Jarrah Hills, situated eight miles to the south-east of Lukput, which are 1,000 feet high. In the low plains near the river, where the ground is undulating, and covered with the milkbush, or tufts of long reedy grass, the soil in most places is extremely sandy, and encumbered with large stones: no cultivation is seen, except in the vicinity of the small villages scattered over the face of the country; and in these spots, which are generally

devoted to the produce of the esculent vegetables, it seldom exceeds two or three acres.

From Loll Chetta, a small mosque ten miles above Kotaseer, the low hillocks on the Kutch side run in a direct line up to Lukput; but the river, receding gradually from them for some miles, and then turning suddenly towards that town, leaves an extensive tract of low land at their basis, of alluvial formation. This is said to have sunk several feet in some places during the earthquake, and a small fort in the upper part, erected close to the river, the ruins of which are still visible, was overthrown during the inundation; it is now covered with water to some depth, and, in the dry season, salt is obtained in large quantities from those parts that are below the level of the river. Near Loll Chetta, where the stream is two miles and a half wide, a large rock, covered with oysters, rises in the centre of the deep channel; and on the opposite side of the river there is a large ruined fort, called Busta Bunder, which formerly belonged to the Raos of Kutch, and was destroyed by the Sindians during their wars with those princes.

Kotaseer is a small village and pagoda, on the Kutch side, situated about sixteen miles from the sea, and is dependent on Nurranseer, a fortified town, full of pagodas, about a mile further inland. They are both celebrated places of pilgrimage of the Hindoos, and are said to be of equal antiquity with the most ancient of the Hindoo temples in other parts of India. The pagoda at Kotaseer is erected on a small rocky eminence close to the river, and, like all these edifices, has been constructed with more solidity and strength than elegance: a broad terrace runs round it, defended by a low massive wall with embrasures, and in these several small guns are mounted. One side of the hillock on which it stands is bounded by the swamp that now occupies the site of the old bed of the river, and before it a mud flat extends, from the banks, about a hundred yards into the stream. Across this flat, a handsome stone causeway has been carried out to another but smaller temple, where there is a large tank built in the river, for the convenience of the pilgrims when performing their ablutions.

The fortified town of Lukput is built upon the edge of the elevated land, about a mile from the river, and encloses a space about 800 yards square, of which not more than a third is occupied by houses: it is of an irregular shape, and the walls are defended by numerous towers and bastions, with guns mounted on them of all sorts and sizes. Most of them are so old as to be entirely useless; but one, a long brass six-pounder, with the arms of Portugal engraved on it, deserves some notice, from the peculiarity of its construction. In the upper part of the breech there is a square piece cut out, about two feet long and eight inches wide, which admits of a small gun being placed inside the large

one, with the muzzle projecting about a foot beyond the open part. It is furnished with a handle, and appears to have been contrived for loading with greater celerity and safety. Lukput was built about thirty-five years ago, by Jemedar Futteh Mahomed, a celebrated Kutch general, to defend the frontiers of the kingdom against the encroachments of the Sindians. It is now garrisoned by 50 Arabs, and 150 Native soldiers, and contains a population of about 5,000 souls, composed principally of merchants and Hindoos, who have fled from Sind to escape the tyranny of the Ameers. About the town, the country is barren and unproductive; and, from the quantity of shells found in the soil in most parts, has probably at a remote period been submerged. Koteree, the landing-place on the Sind side, where there is a small custom house and guard, is four miles below Lukput, and numerous ferry-boats are constantly passing between them, full of men, cattle, and merchandize. From this station, the goods are conveyed on camels to the eastern parts of the Delta, and distributed throughout the inhabited districts of the Thurr.

The effects of the earthquake that visited Kutch in 1819, and laid most of its towns in ruins, are visible in every part of the Koree. Opposite Kotaseer, the banks of the river on the Sind side are perpendicular for about three miles, and close along them there is a depth of eighty-four feet. In this part the land is of alluvial formation, but all the strata exposed to view in the face of the banks, with the exception of two or three of the upper ones, that have been deposited since, are broken up in confused masses, and inclined to the horizon at an angle of thirty or forty degrees. This is also the case throughout the tract of low land lying at the base of the hillocks between Lukput and Loll Chetta. Previous to the earthquake, the river, instead of pursuing the course it now does, turned close round the rocky eminence on which Kotaseer is built, and reached the sea between its present mouth and the Jukkow Creek. Along this line, the country is overflowed at high tide to a depth of two or three feet, and the old banks may still be traced. The alterations that have taken place in this part of the river are very extensive, and have evidently been produced by the sinking and upheaving of the ground during this awful convulsion of nature. The fact is attested by the remains of several boats which are still visible, half buried in the soil that fills up the bed of the old river; and it is probable that to this cause the Koree owes its present magnitude.

REPORT

UPON

PORTIONS OF THE RIVER INDUS;

SURVEYED, IN THE YEARS 1836-37,

BY THE LATE

LIEUTENANT T. G. CARLESS,

INDIAN NAVY.

ACCOMPANIED BY A JOURNAL KEPT BY THAT OFFICER DURING THAT PERIOD.

62071

KEDYWAREE MOUTH AND RIVER.

The entrance of this small branch of the Indus, is situated four miles ESE. of the Hujamree mouth, in lat. 24° 6′ 30″ N. On the south side the land, which is extremely low, runs off from the more elevated tract higher up the river in a broad spit or tongue of soft mud, covered with grass, and at high-water is submerged for a distance of three or four miles. The opposite bank, although considerably higher, is also overflowed on the springs, when the flood tide has attained its height, and the entrance then presents an appearance so totally different from what it does at other times, that it is difficult to recognize it as the same place : all signs of a river disappear, and nothing is seen but a broad sheet of water, bounded in the distance by a low indistinct line of banks and villages, with its surface dotted with cattle, and waterfowl innumerable. At low-water, a steep bank rises on one side, with a grassy plain beyond; and a mud flat projects from the other. The entrance is then 650 yards broad, but the proper channel, which has a depth of twenty-five, and in some places thirty-two feet, is not above half that width.

This mouth is approached by a broad channel, that crosses the upper or northern extremity of the great bank nearly in a straight line : it is two and a quarter miles long, 600 yards broad, and at the height of the flood has everywhere a depth of sixteen and eighteen feet. Outside it, there or two or three detached shoals, that form part of the great bank; and the broad space between, from which several channels, some of them partly destroyed by the last inundation, diverge to the southward and eastward, is somewhat shallower, there being only ten and eleven feet on it at high-water. Of the channels between the outer shoals, only one is of sufficient size to be navigable for large vessels; it is 800 yards broad, has a depth of from thirteen to sixteen feet at high tide, and, if a buoy were placed to indicate the position of its mouth, would be easily accessible in moderate weather. In strong westerly winds it becomes closed, for not being sheltered in the slightest degree from the heavy swell, the water breaks across it. In the fine season, the breakers are heavy on the outer shoals whenever

the sea-breeze blows rather stronger than usual, and at the height of the tide are very dangerous: there being then a depth of six or seven feet on them, only one breaker is seen in a quarter of an hour, but, from the accumulation of water, it rises to a height, and bursts with a force, sufficient to destroy boats even of a large size.

At night, the tides are regular, but during the day the ebb runs eight hours, and the flood four; the velocity of the former is three miles an hour, and of the latter from two to one. At the mouth of the river the rise and fall on the springs is six feet, and it gradually increases as you approach the outer edge of the great bank, where it is ten; there is also a further rise during the night of fifteen inches. At the last of the ebb, the water is fresh, but at other times brackish.

Last year* there was a bar across the channel leading to the Kedywaree mouth, with only eight feet on it: the inundation has removed it entirely, and there are now sixteen and seventeen feet on the same spot. The Kutch boatmen were not slow in taking advantage of this favourable change, for when we were employed surveying it in January last,* ten or twelve large boats entered the river, and proceeded up it to a village on the left bank, where they obtained cargoes of grain. It is probable that the Kutch and Guzerat boats will resort to this branch in greater numbers next season, for they can obtain rice at a cheaper rate there than in any other part of the Delta. The only difficulty experienced in entering it is in finding the proper channel when all the shoals are covered; but this might easily be remedied, and the navigation rendered comparatively easy, by laying down a few buoys. For this purpose, a large buoy would be required at the entrance of the outer channel, with a smaller one on the open space inside, where several streams branch off, and another about half-way between it and the mouth of the river: a small beacon, about twenty-five feet high, should also be erected, on the north point of the entrance.

From its mouth, the Kedywaree runs nearly east in one long straight reach for a distance of three miles, and then receives the waters of a small stream called the Adhearee. At the point of junction, its width is not more than 200 yards, but further down it increases to 500. Nearly at the head of this reach, and on the left bank, is situated Syud Wulee Mahomed-ke-Gaum, the large village where the Kutch boats obtained their cargoes. Up to this place the deep channel, running along the right bank, occupies from half to one-third the breadth of the stream, and at high tide has nowhere less than twelve and thirteen feet water. Below Syud Wulee Mahomed-ke-Gaum a deep muddy swamp, intersected by numerous creeks, that convey a small portion of the fresh water to the half-destroyed channels of the great bank, extends to the

* A. D. 1837.

mouth of the river: it produces nothing but coarse grass or rushes, and, as before remarked, is submerged at high tide. The opposite or right bank is more elevated, and the country beyond, although swampy in many places, is everywhere under cultivation. On this side there is a large creek near the sea, terminating about two miles inland; and above it a narrow stream, called the Rahpoora, that communicates with the Hujamree branch, with numerous small canals to convey the water to the interior.

Above the junction of the Adhearee, the river winds in a succession of short reaches to the northward, then pursues an easterly direction for about two miles, and after turning with a sharp bend to the southward, joins the Wanyanee or main river eight miles above its mouth. Throughout this part its average breadth does not exceed 160 yards, and it presents precisely the same features as are observable in the Hujamree and other small branches. The banks are alternately steep and shelving, and the deep channel, in which there is seldom less than twenty feet water, generally runs along the former. One long reach, near the junction, has the bank steep on both sides, and here the stream, for about a mile and a half, is rather shallow, there not being a greater depth than ten or eleven feet: at the bend above this, where the river turns suddenly to the southward, a narrow bar extends from the low projecting point across the stream, in a lateral direction, to the opposite bank. On this, in ordinary high tides, there is not more than five feet water. At its confluence, the Kedywaree, like all the branches now open, is extremely shallow; a broad sandbank, that has been thrown up along the right bank of the main river for a distance of several miles, reaches across it, and on this we could only discover a very narrow channel, with no greater depth than four and five feet.

Between the Kedywaree and Hujamree, there is a communication by the Rahpoora Creek. It quits the latter river near the village of Boumtee, and, pursuing an irregular course to the south-east, divides into two branches, which join the Kedywaree within 500 yards of each other, near its mouth. It is only navigable at night during spring tides, and is so shallow and narrow, that the bottom of a small fishing-boat just fits into the channel. At the sharp turn near the confluence of the Kedywaree, there is a large canal called Jahloo, which is said also to communicate with the Hujamree. It joins that river close to the village of Jona, and is connected by a small branch with the Rahpoora Creek. At high-water it is navigable for small doondees.

The Adhearee leaves the Wanyanee or main river a short distance below the confluence of the Kedywaree, and enters that branch after pursuing a course to the WSW. for about two miles and a half. In its passage it is joined, on the right bank, by a stream of similar size

and depth, called the Moosawaree, which is also an offset from the main river. In the narrowest part the Adhearee has a breadth of thirty-five yards : the banks are steep on both sides, and, at high tide, the depth of water is nowhere less than nine feet. At the extreme point of junction with the Wanyanee, the eddies have thrown up a small shoal in the centre of the stream, but the channels on either side, although very narrow, are deep. In both these small streams, and throughout the upper part of the river, the velocity of the ebb is seldom greater than two miles an hour, and the flood is both weak and irregular ; the rise and fall diminishes to two feet and a half on the neaps, and four on the springs.

The district through which the Kedywaree flows is entirely destitute of trees : a few tamarisk bushes are seen near the main river, but they are extremely small, and thinly scattered over the surface of the plain. The soil in general is favourable for the production of rice, and as the land is clear of jungle, a large portion of it has been brought under cultivation. In some places, however, it is extremely sandy, and yields nothing but short rushes or reeds. Along the lower part of the river, the few villages visible are situated some distance inland, but above Syud Wulee Mahomed-ke-Gaum, where it turns to the northward, and in the Adhearee and Moosawaree Creeks, they are thickly scattered along the banks, and throughout the adjacent country : collectively they are known as the Bello Kookewaree, and this name is also applied singly to a large one on the right bank of the river, where the Hakim and principal Zemindars reside.

From the report of the Natives, this branch has been gradually increasing in magnitude for the last four or five years ;—the last inundation swept away many banks at the mouth and lower part, and deepened it considerably. I am, however, inclined to think it will experience before long the same fate as the other rivers, and become choked at its confluence. At present it possesses many advantages over the Hujamree, the only other branch now open, and, in affording access to the main stream, presents equal, if not superior facilities to the grand embouchure itself. From the sea, the distance through the Adhearee Creek is only ten miles, and at high tide there is not less than nine feet water in the shallowest part. All the difficulties of the navigation will disappear when a few buoys have been laid down, and I have no hesitation in asserting, that by this route a steamer drawing six or seven feet might reach the main river without difficulty in two hours at a spot seven miles above its mouth.

KOOKEWAREE MOUTH.

Nearly the whole of the water discharged by the Indus in the dry season reaches the sea by the Kookewaree mouth, which is the grand embouchure. At present only two branches, the Hujamree and Kedywaree, are open, and these being narrow, and extremely shallow at their confluences, a very small portion escapes through them. From the large quantity of soil carried out of the main river, and the greater velocity of the current, extensive sandbanks have accumulated before its mouth, and these have arisen to such a height that they are barely covered in many places at the highest tide.

The Kookewaree mouth is nearly a mile broad, but a mud flat, on the right bank, contracts the width of the river at low-water to 770 yards. At the full and change of the moon, the tide, for two or three days, rises a foot and a half higher than usual, and then, like all the other mouths, it can scarcely be distinguished even from a short distance, the country on both sides being inundated for several miles. At low-water the channel, which adheres to the left or steep bank, is 700 yards wide, and its depth varies from nine feet to four and a half fathoms.

When I examined the Kookewaree mouth last year, there were three channels leading from it across the bank outside, and that running to the north-west, towards the Kedywaree entrance, was by far the best. The last inundation destroyed all but one, and this, from the greater body of water discharged through it, has attained nearly double the width it then had, and is rather deeper. It pursues a course to the south-west, in the same line as the river above, is four miles and a half long, and preserves the same breadth (1,100 yards) until near the sea, where it gradually widens to a mile and a half. The greater part of this broad space, however, is occupied by an extensive shoal, with only seven and eight feet on it at high tide, and the channel becomes divided by it into two smaller ones. These, again, have small shoals at their mouths, and by these continual subdivisions the great channel presents no less than four different openings by which it may be entered. Of these I shall describe only the two best. The northern one has a breadth of 570 yards, and a depth of from nine to thirteen feet at high tide, but being unprotected from the swell, the water breaks across it during the sea-breeze. The southern one is 500 yards broad at the entrance, but about a mile above it contracts to 130 yards: it is, however, deep, there being in general from twelve to eighteen feet at high tide, and in the narrow part two to three and a half fathoms. It is defended from the swell, that usually accompanies the sea-breeze, by a projecting point, and in this respect possesses a great advantage over the other. Off these channels the depth of the sea quickly increases; three hundred

yards outside them there are four and five, and at about a mile distant seven and eight fathoms. The shoals are also very steep, there being in some parts two and three fathoms within a few yards of them.

Above the large shoal that occupies the lower part of the main channel, the depth of water is from nine to twelve feet, which increases as you approach the entrance of the river; and there is only one spot where there is not more than nine feet obtained in sounding across it. The current does not run with such velocity as might be supposed: on the springs it never exceeded three miles and a half an hour, and at other times was half, and even one mile less. The strength of the flood varies from a quarter to one mile an hour. Outside, the sea rises ten feet on the springs, but this quickly decreases on the shoals to six, and at the mouth of the river to five; two days after the change of the moon there was a further rise, as before remarked, of a foot and a half. This only happened twice in the day, but was always the case in the night. On the neaps the rise is less by a foot and a half.

At the entrance of the channel leading to the Kookewaree mouth, the navigation is certainly intricate, but a few buoys or marks would render it sufficiently easy for steamers drawing six or seven feet, and I do not think they would experience any difficulty in entering the main river by it. If it is ever brought into use, it will be necessary to erect a small beacon about thirty feet high on the south point of the river, and lay down a large buoy with a cone off the channel leading to it. Marks must also be placed throughout its extent: I think three will be found sufficient; and it would answer every purpose, and, perhaps, save expense, if they were to be composed of a post sunk into the bed of the stream, with a cone or cross at the top;—the small depth of water would admit of this being done easily, by lashing a couple of large boats to them at high-water, to force them down as the tide fell. As it will be necessary to place them in some spots on one side of the channel, and in others in the centre, they must be painted different colours, to indicate on which side they are to be passed.

Between the channels leading to the Kedywaree and Kookewaree entrances, four other openings are observed along the outer edge of the great bank; these are channels that have been lately destroyed, and now only communicate with the main river at high-water. About this part of the Sind Coast the navigation, although not dangerous during the fine season, is more difficult than elsewhere, from the steepness of the shoals composing the great bank: in some places there are three fathoms close to them, and at not more than a mile distant seven or eight. During the night, vessels ought never to stand into less water than seven fathoms, and even in the day, when, from the lightness of the wind, the sea is too smooth to break upon the bank, should be cautious in

approaching it under that depth; for on some of the spits the soundings decrease suddenly from three and a half fathoms to eight or nine feet. On the neaps, the sea rises seven feet, and on the springs ten feet. The tides are irregular, and weak; at the mouths of the channels the current runs in a stream of fresh water directly out of them, off shore, but quickly loses its strength between and a short distance outside them. The flood sets along the coast to the south-east, the ebb in the opposite direction; and their velocity is seldom so great as one mile an hour.

THE MAIN RIVER FROM ITS MOUTH TO THE TEETEEAH.

From the Teeteeah, the main river pursues a SW. by S. course to the ocean, and, unlike the branches it throws off, has few abrupt turns or windings below the confluence of the Seeahn or Hujamree. It is generally known as the Wanyanee, and near the mouth is sometimes called the Munnejah. This name, however, is only applied to it by a few of the Natives residing on its banks, and is not generally recognized in other parts of the Delta. From the Seeahn to the deserted bed of the Nair, it receives the appellation of Poput, and above that is called successively the Moograh and Setta, from its having once formed a part of those now abandoned rivers. Its average breadth is about 750 yards; but in some parts it is rather wider, and in others is contracted to less than half that breadth by extensive flats, that have gradually accumulated, and now project from the old banks far into its bed. The greatest and least width is found abreast of the Mootnee, where from 1,060 yards it decreases to 305; in three or four places besides it is 1,000 yards broad, and there are few reaches where it does not diminish at some part to 350 or 400 yards. Throughout this portion of the river the banks in general are alternately steep and shelving, and the former in most cases indicate the side on which the deep channel lies. There are a few reaches, however, where the high bank is formed of several ledges, and then a narrow ridge of shallow water frequently runs along it.

In general, half the bed of the stream is occupied by a shoal, extending from the low bank, and the shallowest part of the channel is always found at those places where you cross between two of them, from one side to the other. There are also a few detached shoals in the centre of the stream, and they are mostly met with in the long straight reaches: upon these there are from three to six feet at low-water, and the bottom is invariably hard. At the bends of the reaches the depth is always great, there being frequently six, eight, and even ten fathoms. The crossing-places between the

flats are shallower, and there the depth varies from thirteen to eighteen feet. Opposite Meeahn, a large fishing village, one mile above the junction of the Kedywaree, a very narrow ridge extends in a lateral direction across the channel, from one flat to the other. There is another that projects from the right bank, about a mile down the reach, below the Seeahn, and connects a line of shoals at high tide. There is a depth of nine and ten feet on both these bars, and they are the shallowest parts of the river. Abreast of the old Mootnee, the bed of the stream is rather foul, but even here there is a channel of from ten to sixteen feet at low-water, which, although narrow, could easily be navigated, and on the shoals not less at high tide than seven and eight feet.

In speaking of the velocity of the current, it must be remembered that this portion of the river was surveyed during the months of February and March, when it is at its lowest state. It is now, I believe, generally admitted that the strength of the current in large rivers does not depend so much on the slope of the country through which they flow as on the supply of water they receive ; and to the diminished quantity discharged by the Indus in these mouths the comparative weakness of the current when it was surveyed must be attributed. Its strength varies from one and a half to two and a quarter miles an hour, and the latter is about the average velocity : it nowhere exceeds three miles and a half, and only runs at this rate in two or three places, where the water is confined to a narrow channel, at the bend of a reach. The flood does not ascend higher than Unnee, a village ten miles from its mouth, nor even to this distance on the neaps ; its velocity varies from a quarter of a mile to a mile an hour, and it never continues to flow longer than two, or at the utmost three hours. Near the sea the tide rises five feet on the springs in the day, and one foot higher during the night : the rise decreases gradually up to the Teeteeah, where it does not exceed four inches. Along the steep bank, especially where it is much indented by the separation of large masses, the current sometimes runs in small eddies, but they seldom extend further into the stream than twelve or fifteen yards : it is only at these places where it is necessary to pay any particular attention to the management of boats in tracking, for the water being thrown off from every small projecting point of the bank, if the track-rope is not brought down from the mast head to the stem before it strikes the bow, they are shot out suddenly into the middle of the stream, and carried down the river. Opposite the junction of the Teeteeah, and at Panjgudjer, a large village three miles below the Seeahn, the eddies are upon a larger scale, and afford some insight into the manner in which shoals are formed, and the course of the river changed. At the first-

named spot the current sets across the channel, and is thrown off the steep bank a little above the Teeteeah nearly at a right angle down the middle of the stream. Half a mile further down it turns into a small bay or bight, and runs up past the Teeteeah at the rate of about a mile an hour: this upward current is in the deepest part of the river, and prevails over a space about 180 yards broad. At the point where it turns into the bay, the formation of a small shoal has commenced, and a short distance below it there is another similar bight and eddy. At Panjgudjer, which is situated in a sharp bend, the mud has accumulated to a greater extent, and the eddies do not, in consequence, exert so much influence.

From the foregoing description it will be perceived that a steamer of six or seven feet draught would have little difficulty in navigating the main river as high as the Teeteeah, a distance of thirty-five miles, even when at its lowest state: vessels of this draught however will, I think, be found too large for navigating the Indus above that stream during the dry season. Lieutenant Wood mentions in his report that on a subsequent and careful examination of the river below Hyderabad, he could not find more than seven feet six inches and eight feet four inches in the deepest part of the lines of soundings taken across it. If no greater depth was found, it is highly probable that, when the river is at its lowest, a continuous channel does not exist of more than four or five feet; for it appears to be a peculiarity of the Indus to throw up narrow bars or ridges, stretching obliquely across the stream from bank to bank, on which the depth is considerably less than in the adjacent channels. Two have been discovered in the main river in a distance of thirty-five miles during the last survey, and in a part that is both deeper and more free from shoals than any other; they also exist in the Kedywaree, and in the Koree or great eastern branch, which I surveyed in 1833, they are still more numerous, and upon a much larger scale.

The land about the mouth of the main river is submerged at high tide for many miles, and continues swampy as high as Betree, a large village on the left bank, at the head of the first reach. On the left bank the country, being perfectly free from brushwood or reeds, and the soil good, is under cultivation to a considerable extent. Numerous small canals convey the water to the fields; and besides these, there is a navigable creek of some size about two miles above the entrance of the river, called the Babooloo. It is joined by two or three small and shallow creeks further down, that are only filled at the height of the tide, and these, which lead to the old Gorah mouth, once formed a part of the river of that name. The Babooloo also affords a communication with the Kaher mouth by the Goombrah, another large navigable creek thrown off from the old Gorah. On the right bank nothing is seen

for some miles, above the muddy swamp at the entrance, but a dense mass of high reeds, occupying the site of an extensive morass, produced by the stream having taken a course more to the eastward. At the lower part of it a large creek is thrown off, which traverses the low swampy land of the coast in a westerly direction, and reaches the sea by a small channel that joins the one leading from the Kedywaree mouth near its entrance. I passed through it in the *Mootnee* at high-water, and found a depth of six and seven feet in the shallowest part. Above the thicket of reeds, the country becomes more elevated, and is bare of trees up to the junction of the Kedywaree, where a few small tamarisk bushes are first perceived. But few villages are seen in the vicinity of the river about the lower part, and these are small : along the course of the Babooloo and Goombrah creeks they are more numerous, and form a cluster known as the Syudwaree-ke-Gaum : there are also a few at the mouth of the creek on the opposite side.

At the junction of the Kedywaree, the tamarisk jungle commences : here it is thin, and intermixed with patches of reeds or rushes. As you advance, it quickly becomes dense, and the *Mimosa* is met with in large quantities. Most of the villages and fields are not visible from the river, for the country is overrun to the edge of the banks. There are few large villages, and even these do not contain more than fifty or sixty huts. Meeahn, situated about a mile above the Kedywaree, on the right bank, is one of the principal fishing stations. At Unnee, about the same distance above it, there are two ferries, with boats constantly in readiness. Close to this spot the remains of the upper part of the old Gorah river are still visible.

The Mootnee branch formerly quitted the main river thirteen miles from its mouth. At the confluence it was nearly two miles broad, as is evident from the steep banks even now visible. The entire space is filled up with sand, and in some places overrun with jungle. There is still a small irregular creek running through the middle of the plain, which at high-water affords a communication between the Mootnee and main river, but only for the smallest description of doondees, there not being a greater depth than a foot and a half at its mouth. The deserted bed of the Mull branch is seen three miles higher up : it appears to have been as large as the Mootnee, and is still more completely choked, the land having attained a more advanced stage of formation. The greater part of its bed is now covered with jungle, or under cultivation, and the remainder is occupied by loose heaps of sand, with pools of water that have no connection. About a mile above it, a canal was cut to this branch from the main river two years ago, below the part that has been destroyed. During the last inundation it attained a width of thirty yards, and deepened so much that it is

now navigable for small boats at high-water, even in the dry season. The Natives frequently call it the New Mull; and it is not improbable that in a few years it may become entitled to the appellation of a river. From this creek to Panjgudjer, a large village three miles above it, there are two ferries, and another at the junction of the Seeahn. Above the Seeahn none but small villages are seen, until you arrive at Killan, on the left bank, containing sixty or seventy houses, and inhabited chiefly by Hindoos. About this part of the country the remains of old rivers are everywhere visible: I traced three—the Nair, the Moograh, and the Killan—several miles inland; and the Natives told me there was another formerly, called the Setta, ten or twelve miles higher up.

The Teeteeah is a small stream that joins the Richel at the village of Mounara, near its mouth. From the report of the Natives, it has not a greater depth in many places during the dry season than a foot and a half or two feet, and only the smallest boats can find a passage through it: that there is a passage, even when the river is at its lowest, is evident from the current, which in March was running down it at a rate of about a mile and a half an hour. There are several villages near its junction with the main river, and the largest, Bemun-jo-Poora, is the residence of the Kardar of the district.

JOURNAL KEPT BY LIEUTENANT T. G. CARLESS, I. N., WHILE EMPLOYED ON THE SURVEY OF THE RIVER INDUS, 1836-37.

On the 26th November 1836, I quitted Mandvee with the flat boat built for the Indus survey, and on the 2nd December entered the Hujamree river. Having to make some arrangements with the Native agent at Vikkur respecting our future supplies, I ascended it to that town. I found that a considerable alteration had taken place in the lower part of this branch since it was surveyed last year, which had doubtless been caused by the inundation. The *course* of the river had not changed, but the channels had shifted in many places from one side to the other, and, in general, become shallower. Here and there it had also deepened four or five feet, but unfortunately this had only occurred where there was before a depth of three or four fathoms. In several instances, new shoals have risen above the surface of the water, but not one has disappeared: most of those extending from the low banks have enlarged considerably, and at the parts where the flats reach from side to side the depth of water is rather less.

The following is a brief account of the most striking alterations:—A short distance below Vikkur there was a flat projecting from the left bank last year, with three and four feet on it: it has gradually risen to

the surface along the outer edge, and now forms two long shoals, nearly in the centre of the stream, that are dry at low-water. At a sharp bend about three miles lower down, a narrow channel of seventeen and eighteen feet formerly existed, which ran along the right bank, and the remainder of the river was occupied by a flat with from two to five feet on it: where the channel was, there is now a long shoal, and in the centre of the river, where it is deepest, there is not a greater depth than seven feet. Near the junction of the Chagooloo Creek, a shoal, projecting from the right bank, has increased to more than double its former size, and contracted the breadth of the stream at low-water to eighty yards. These remarkable changes are confined chiefly to a part of the river immediately below Vikkur, about five miles in length, where the turns are very sudden and frequent, and have been caused by the body of water discharged during the swell being precipitated with great violence from one bank to the other, at the angles of the reaches. Throughout this part the depth is nowhere the same as it was last year: in a few places the channel has certainly deepened, but in general it is much shallower. Below the Chagooloo, the river runs in a succession of long straight reaches to its mouth, and the current sets fair down them. An alteration is everywhere perceptible, in some spots for the better, in others for the worse; but it has not been carried to any great extent.

The channel leading across the shoals at the mouth has shallowed from one to two, and in some of the deeper parts to over five feet. Last year there was a depth of eighteen feet at the entrance, and the sea never broke, even in strong westerly winds: on sounding at the same spot this year, I could not obtain more than thirteen, and when at anchor inside, during a moderate sea-breeze, I observed that the line of breakers occasionally extended right across it. The bank at the north point of the entrance was formerly composed of cliffs of stiff clay, and steep, there being six and seven feet water close along it: at present a flat of hard sand, so firm that on walking over it the foot leaves no impression, shelves gradually off, and, for a distance of about a hundred yards up the river, projects fifty yards further into the stream. At this spot the combined effect of the south-west monsoon and the inundation is particularly visible: large masses of the clay bank have been torn away by the violence of the current, and carried out upon the shoal; these have become firmly fixed in the sand thrown up by the heavy monsoon swell, and, from a short distance, now appear like detached rocks, protruding through the surface. Along the coast, between the Hujamree and Richel rivers (a distance of two miles), the effect of the monsoon is again discernible: last year the sea came up to a line of clay cliffs two or three feet high, which then formed the boundary of the coast in this

part; now a smooth beach of hard sand projects thirty yards beyond them.

The first reach inside the mouth of the river has less water by three, four, and even six feet, than it had last year, and where boats could anchor before in thirteen feet at low tide, there is now not more than eight and nine. There was also a shoal, extending for about a mile along the right bank, with from three to five feet on it: it is now dry at low-water.

A change has also occurred here and there near the sea, in the face of the country upon the banks of the river. There is an extensive plain five miles from the entrance, which last year was at all times a deep muddy swamp, partially overflowed at high spring tides: this season it is quite dry, except in one or two spots, and the swarms of waterfowl with which it was always covered have deserted it in consequence. I attribute this to the greater height of the river bank, from the soil deposited on it during the inundation. It is a well known fact that in all rivers subject to a periodical swell, the ground in the immediate vicinity is rather higher than the interior parts of the country. In the instance related above, the bank had attained such a height that the further deposit of a few inches of soil would effectually prevent the water from gaining access to the plain inside during the dry season, even at the highest state of the tide.

Shortly after I had examined the river, a copy of Lieutenant Wood's report on the alterations that have taken place reached me from the Superintendent's Office, with instructions to make further inquiries on the subject. The circumstance mentioned by him, which he gives on the authority of the fishermen who carry on their duties at the mouths of the rivers, that "the October springs will carry off much of the mud which this year's freshes have left upon the bar, and deepen, to a certain extent, the whole line of the Hujamree below its seaport," is not corroborated by any information I have been able to obtain. I questioned the crews of several fishing-boats, and their answers proved that they had no knowledge whatever of the circumstance. The fact of the river being in a much worse state than is described in Lieutenant Wood's report, when I examined it two months after, clearly shows that the October springs have at all events failed this year in what is stated to be their usual effect. I may also observe that there is no mud whatever on the bar, and about the mouth of the river it is all firm sand, mixed here and there with a very small portion of stiff clay; and no spring tides that I have seen in the Hujamree have sufficient strength to clear it away.

Very few changes have taken place in the upper half of the Hujamree (called the Seeahn), and these are confined to its confluence. Last

year a narrow channel of ten and twelve feet led into the main stream: I sounded across it this season, and had only one cast of five feet in the deepest part. Another shoal, the summit of which is dry, has accumulated outside it, and this has been thrown up in such a position, that it prevents the water in a still greater degree from seeking an outlet by this branch. In the second reach from the junction the old steep banks of the river are 200 yards apart: when I examined it last season, the stream, about fifty yards wide, flowed along the right bank, and the remaining space was filled up by a dry flat, in such an advanced stage of formation that it had been brought under cultivation. In this part, the river is entirely altered, the stream and the flat having changed places: the former now runs along the left bank, and the latter projects from the opposite side. I should not be surprised if the next inundation were to close the Hujamree completely; and then its seaport, Bunder Vikkur, will probably lose the greater part of its trade, for there will be no water route by which it can be conveyed to and from the upper parts of the Delta. It will, however, facilitate the navigation in the lower part, for when all communication is cut off with the fresh water, the tide will become stronger, and the channels deeper, as is the case in all the salt-water rivers. This, however, can scarcely be called an advantage.

When at Vikkur, I traced the Gorah Creek across to the Wanyanee or main river: half its bed is now level with the plain, and nothing but a few faint marks are seen to indicate the course it formerly pursued. In 1831 Captain Burnes passed through it in his route to Hyderabad, and before that period it is said to have been a broad and deep river.

The officers appointed to the survey not having yet joined me, and being unable to commence without them, I determined to employ myself until their arrival in examining the Kedywaree river, which we entered on the 8th December. Soon after we had anchored at its mouth, several Kurachee fishing-boats came in from sea, and made fast to the bank near us. They had not long been there before two Belooch soldiers made their appearance, to demand a share of the fish: an altercation ensued, but the fishermen were obliged to comply; and after throwing on shore several fine large fishes from each boat, they all quitted the spot in great disgust, and stood out to sea. The people engaged in the coast fishery are a hardy, industrious race, and exhibit a greater readiness to oblige than any other class in the Delta. Whenever they came near our boat, they always sent us some fish, and for this they neither expected nor would accept any remuneration. Their boats are beautifully built, and well adapted for the service they are employed in: although extremely sharp about the bow and stern, their great beam gives them such buoyancy, that they are enabled to run into the shallow mouths, through

the breakers, without sustaining the slightest injury or inconvenience. The Kedywaree mouth is one of the spots to which the fishermen resort: here they may generally be seen in great numbers, drying fish, mending their nets, and soaking them in chunam, which they say prevents them from rotting. About this spot the stench is insufferable, the land for some distance being strewed with fish in a state of putrefaction: only a part of the quantity taken is reserved for salting, and as they never throw any overboard, they are left here in heaps.

The fishermen had told me that I should find the channel leading to the Kedywaree in a much better state than it was last year, and this on examination proved to be the case: the inundation had swept away the bar entirely, and where there were before only eight feet, there were now eighteen; it had also deepened the river so much that it had become navigable for the largest boats. Some of the Kutch Tindals having heard of the change, and not being able to procure grain at Vikkur, in consequence of a quarrel between the chief and the merchants, hastened to this branch, to try if they could effect an entrance: they succeeded without difficulty, and obtained cargoes at a much cheaper rate from the villages in the upper part of it.

The examination of the Kedywaree terminated at Bello Kookewaree, a large village near its confluence, where we were stopped by a party of Belooch soldiers; but I had seen enough to determine me to survey it on the first opportunity. On arriving at the village, we were told by one of the chiefs that he could not allow us to proceed any further up the river, as he had no orders to that effect; and on attempting to pass, a number of men laid hold of the track-rope, and prevented it. I told him we had permission from Meer Noor Mahomed to go wherever we wished about the rivers, for the purpose of examining them, and that he would get himself into trouble by refusing to let us pass. He said he cared neither for Meer Noor Mahomed nor Meer Nusseer Khan, the district belonging to Meer Ali Moorad of Meerpoor, who was his master, and no orders but his would be obeyed there. The Kardar, it appeared, was at a village about three miles distant: they said he was expected at sunset, and I anchored in the middle of the stream until he made his appearance. In the evening, the interpreter was sent to ascertain if he had come in, and was told that he had not; but that a man had been despatched to inform him of the circumstance, who had just returned, with orders to prevent us from ascending the river. The soldiers and people were not uncivil, but persisted in refusing to let the boat pass without the orders of their chief, and he would not allow it until permission had been obtained from Meer Ali Moorad, the Meerpoor Ameer, to whom the district belongs. Finding that nothing I could say had any effect in altering their determination, I was reluctantly obliged

next morning to return to the entrance of the river. A few days after, I proceeded in the cutter through the Rahpoora Creek into the Hujamree river, to meet Colonel Pottinger, then on his way back to Kutch: I informed him of the circumstance, and he immediately wrote to the Ameers on the subject.*

The Rahpoora Creek leaves the Hujamree five miles from its mouth, and after pursuing an irregular course to the SSE. for two or three miles, divides into two branches, which fall into the Kedywaree near its entrance, within 500 yards of each other. It is only navigable on the springs during the night tide, and is so narrow and shallow that the bottom of a moderate sized fishing-boat just fits into the channel. We encountered several of these inconveniences, and had to drag our small cutter past them through the mud.

On the 19th December, three days after my return to the *Mootnee*, the *Shannon* made her appearance, and the day after the survey was commenced. The state of the Kedywaree branch and lower part of the main river, with their mouths, is fully described in a separate report, and it is unnecessary to repeat it here: there are, however, many points of interest, which could not be well introduced in a report confined chiefly to the navigation of the rivers, and upon these I shall offer a few remarks.

Between the Kedywaree and Kaher mouths, the Sind Coast presents a peculiarity of formation not observable elsewhere. It extends from the more elevated plains further inland, in a series of long spits or tongues of considerable breadth, which, from the rounded form they have assumed, bear the appearance of having been thrown up by a rush of water. These tongues are composed of the clay and mud deposited by the inundation, and, being always submerged at high tide, have not become firm, like the tracts that are only overflowed at intervals. The highest part is covered with long grass, which quickly springs up in great abundance, and from this they shelve off to the channels and shoals of the great bank. They are separated from each other by creeks leading into the main river and its branches, and these, with their numerous ramifications, form an excellent water communication throughout the districts on the sea coast. As this peculiarity is not seen on other parts of the coast, it is probable that the greater part of the water discharged by the Indus during the swell pursues a course through the centre of the Delta, and reaches the sea at this point. Indeed, I should think that comparatively a very small portion finds an outlet through the western arm, and this is subdivided amongst so

* About a month afterwards, I received a Purwana from Hyderabad, signed by Meer Noor Mahomed and Meer Nusseer Khan, addressed to the Chiefs in the Delta, and directing them to afford me every assistance in examining and sounding the rivers.

many streams in its passage to the sea, that the inundation can neither be so general nor so extensive in the western as in the central parts of the Delta. As to the eastern rivers, the quantity they receive is so small that the Natives have been obliged to construct bunds near their mouths, in order to retain the whole for agricultural purposes. From the numerous destroyed rivers met with in the Delta, which have been deserted within the last twenty-five years, it is evident that the face of the country has undergone an entire change since that period. Formerly the blessings of the inundation must have been distributed equally by their means through every part of it; and I think in these extensive alterations we may trace one of the causes that led to the great decline in the prosperity of Sind during the last half century.

Immediately above the tongues on the coast, the land, although firmer, and more elevated, is still very swampy, being partially flooded at high spring tides to a considerable distance. In walking, or rather wading over these muddy plains, on various occasions, I observed an immense number of thin jets of water sent up from the surface to the height of about eighteen inches: on examination, I found they proceeded from the holes of the Newtee, or mud-fish. The whole of these dreary tracts afford excellent pasturage for buffaloes, and on that account are considered by the peasantry as valuable property. By mutual agreement, the ground is divided amongst the villages in the vicinity, and the boundary of each portion defined by a low bank of clods. No rent or tax is demanded for it until it becomes available for agricultural purposes, when it ceases to belong to the villages, and is bestowed by the Ameer, in whose territory it may be situated, on some of his followers. Day after day immense herds of buffaloes are driven to these pastures in the morning, and called in at night: the leader is furnished with a bell, and pushes on through the mud, or across the creeks, regardless of everything. These animals take to the water as if they were amphibious, and are frequently seen crossing the large branches in droves, very often with men on their backs. Bullocks and sheep do not appear to thrive amongst the swamps, the few that are met with being always miserably poor. Notwithstanding the dreariness of these marshy districts, they often present a greater appearance of animation than is observable in the more populous parts of the country higher up the river: every creek is full of boats, and men are seen scattered over the surface in every direction, cutting grass for the cattle of the distant villages. It is of a coarse, thorny kind, that grows to the height of twelve or eighteen inches, but is only cut close to the sea, for a short distance inland the small rush springs up in such abundance that it is impossible to separate it. The lives led by these poor wretches must be extremely laborious and

miserable, employed as they are day after day in collecting forage on these deep and dismal swamps: all of them have an unhealthy appearance, and I saw many cases of disease amongst them, where the whole frame was apparently wasting away, from the effects of continued exposure to damp, and bad food.

It is almost impossible to convey an idea of the vast quantities of waterfowl that frequent the swamps and morasses of the Sind Coast; they are literally covered. The varieties of the wild duck, widgeon, and teal are innumerable; and geese, flamingoes, pelicans, spoonbills, storks, cranes, curlews, herons, snipes, with several other kinds, are seen in immense numbers. The Egyptian ibis is common: there is also a large black bird, with a white spot on each wing, and a long curved bill, the plumage of which on a near view appears tinted with dark green, red, and gold, and varies its hues when placed in different positions, like a shot silk; the head and throat are bare of feathers, and the crown is covered with small fleshy globules of the most brilliant scarlet. There is another variety, without the white spot on the wings, or the bare neck, and head with its scarlet crown.

Throughout the great bank that has been cast up before the mouth of the main river, extensive alterations have taken place since it was examined last year. In order to give a clear idea of them, I have extracted from my former report the description of the channels leading across it, and this, when contrasted with their present state, will show what extraordinary changes the mouths of the Indus undergo:—

"The broad bank that has accumulated before the Kookewaree mouth projects five miles from the land, and is intersected by three channels, which give egress to the waters of the Munnejah. Two of them cross the bank nearly in the same direction as the course of the river that supplies them, but the other, turning to the north-west, runs some distance in a line parallel with the shore, and, after uniting with the channel of the Kedywaree, reaches the sea about five miles to the southward of the Hujamree mouths. The latter is the best of the three, and between three and four hundred yards broad: about half-way up this channel there is a shallow spot, which has barely nine feet on it, and this is the least water obtained throughout. At the lowest state of the tide the beds of the two southern channels are elevated from three to four feet above the level of the sea: the vast body of water issuing from the Munnejah river rushes through them with great impetuosity, and with a noise that in calm weather is heard some distance. They then form what may be termed rapids, and on the extreme edge of the bank terminate in a fall of about twelve inches." To this I may add that these channels were not more than five or six hundred yards broad, and had not a greater depth than seven or eight feet.

Of the two southern channels leading direct from the entrance of the river, only one now exists, the other being choked at the point of separation: the lower part of it has not been destroyed, and there is still a small quantity of water forced into it over the bar that has been thrown up. The northern channel, which was four or five miles long, formerly connected it with the Kedywaree mouth, and was by far the best of the three: this has been completely obliterated; not the slightest trace of it now remains. The smaller channels it sent off towards the sea have shared the fate of the parent stream, and are either entirely destroyed, or do not extend above half-way across the great bank. On the destruction of this outlet, the inundation partly opened two others in the same direction, but further in shore: one, commencing in the most depressed part of a muddy swamp, on the north side of the entrance to the main river, pursues a course along the land, and the other, issuing from a small creek a short distance above it, runs in the same direction between it and the shore; both of them join the channel leading to the Kedywaree mouth near its entrance, and the latter only has a communication with the main river. The extensive alterations that have occurred in this part of the great bank have no doubt been caused by the rapid current of the inundation throwing up a bar, at the point where the channels separated, at the commencement of its rise: the water being thus prevented from passing into them, they were subjected to the action of a body of water setting off shore across them, from the broad space of low land between the Kookewaree and Kedywaree mouths, and quickly filled up. As the swell attained its height, it appears to have sought other outlets in the same direction, and we find, accordingly, that a portion of its waters, flowing through the creeks and over the most depressed part of the swamps, has partly excavated new channels. The closing of the old outlets, by throwing the whole body of water for a considerable period into one channel, has materially improved the approach to the main river: last year the channel now open was the worst of the three, but it has since increased in magnitude to such an extent that it has become double its former breadth, and deepened considerably; its bed, also, being now wider and much lower than it was, the rapid described in the first report, and the fall at its mouth, have disappeared.

Near the entrance of this channel, a shallow stream, about 300 yards broad, joins it on the south side: it leads across the sandbanks to the old Gorah mouth (situated about two miles below the Kookewaree) which was deserted by the river about fifteen years ago. It has still a breadth of 850 yards, but is nearly filled with mud, and quickly contracts to a small creek (the Babooloo) that communicates with the main river, and is navigable for boats of moderate size. This part of

the great bank, being unfrequented, is the resort of innumerable pelicans, flamingoes, wild ducks, and in fact every species of waterfowl.

The great bank has been thrown up partly by the current from the rivers during the swell, and partly by the violence of the south-west monsoon. The interior part is composed of a deposit of soft clay or mud, mixed more or less with sand, and near the shore grass is seen springing up over the surface in large patches: in fact, so gradual is the change from what may be considered as belonging to the land and what to the sea, that it is difficult to determine where the one ends and the other begins. Along the exterior part, the bank is formed of a succession of sandflats, that are not covered in many places even at the highest tides: they are smooth and firm, and grass has already made its appearance (but not in any quantity) on those parts not exposed to the salt water. These flats, being thrown up by the sea, are steep along the outer edge, and frequently rise almost abruptly from a depth of three or four fathoms. A small white worm, two or three inches long, is abundant on them, and forms the principal food of the swarms of aquatic birds that frequent the coast.

When in the great channel leading from the Kookewaree mouth, I endeavoured to ascertain the quantity of soil contained in a cubic foot of water. When reduced to the consistence of mud, or the same state in which it is deposited on the banks, I found it to be three cubic inches: this, however, is rather too large for the average proportion held in solution by the waters of the Indus; for a certain portion, being forced back into the mouth by the flood tide, must augment the quantity in their immediate vicinity. I accordingly found that the mean of three experiments, made above the influence of the tides, gave only two and a half cubic inches. Taking this as the average quantity of soil in a cubic foot of water, and the discharge as given by Lieutenant Wood, the Indus conveys to the sea annually 8,536,255·949 square feet of mud; and this would cover a space nearly seven miles and a half square to the depth of four feet.

Having finished the survey of the Kookewaree mouth, and the channel leading to it, I proceeded from the main river, through a small creek, to that part of the coast lying between it and the Kedywaree entrance, which had not been completed. On our way, the boat was hailed by a Belooch soldier, who said he had been sent by Syud Summaba, the Chief of the Kookewaree district, to ask if we would allow him to pay us a visit. I told him I should be happy to receive him, and about an hour after he came on board, attended by eight or ten armed followers. Every toy and trifle that was likely to amuse them was put in requisition: musical boxes, telescopes, kaleidoscopes, &c. were examined, and admired one after the other. They were delighted

with everything they saw; but what seemed to please them more than anything else was a large looking-glass that happened to be lying on the table,—their childish delight was truly ridiculous. On their return to their villages, they gave such an account of what they had seen, especially of the large telescope, that for many days after boats came alongside full of people, bringing trifling presents of fowls, &c., who requested, as a great favour, to be permitted to look through the wonderful machine which brought the houses close to them. A crowd of villagers having collected on the banks of the river near the boat, the chief asked me if I would allow them to come on board, observing that they were all very anxious to see the English, and that such an opportunity of beholding the curious things we had with us would perhaps never again occur. I of course consented, and the boats were sent to bring them. In a few minutes the vessel was crowded with a ragged but joyous mob, laughing at, and examining everything. The chief directed his attendants to take care the villagers behaved themselves properly, and did not touch anything without permission. When he left the vessel, I gave him some of the articles he had so much admired: he was apparently gratified with his reception, and invited us to visit him, adding,—"The Ameers have sent down orders to give the English officers every assistance they may require, and in doing you any service I shall be as a dog!"

On anchoring near his village, some days after, he sent his brother down with horses, and we set off to return his visit. He received us in a small hut, where he had made such preparations as were in his power, and expressed his satisfaction at seeing us again. He told us that he had ordered a dinner to be prepared, and begged we would stay and partake of it: but this I declined, excusing myself on the plea of being extremely anxious to proceed up the river. Happening to admire a carved leather case lying near me, which is used in travelling for holding dishes, he insisted upon my accepting it, and appeared so anxious to find out if there was anything else that pleased me, that I found it necessary to keep my admiration to myself. On parting, the Syud directed a sheep and some rice to be taken to the *Mootnee*, observing that it was all he then had to offer, and that he hoped to see us at his house in Hyderabad, where he should be better able to requite our kindness. In returning to the *Mootnee*, both Syud Summaba and his brother threw off the reserve they had affected when conversing about the country before their attendants, and were very communicative. They complained bitterly of the government of the Ameers, and said they were disliked by all classes. On the accession of the Talpoor dynasty, the chiefs, it appears, dispossessed most of the original proprietors of the whole or a part of their lands, and bestowed them

upon their military followers. The family of Syud Summaba did not escape, and, from being wealthy, became comparatively poor. As a natural consequence, all these people, who form what may be termed the middle class in Sind, detest the Ameers, and their hatred is kept alive by the acts of tyranny and oppression they are continually subjected to. We parted from the chief and his brother much pleased with the reception we had met with.

Having completed the whole of the work outside, the survey of the main river was commenced and continued up to the junction of the Kedywaree, when that branch was also thoroughly examined.

About its mouth, the main river attains a magnitude at high tide conformable to the idea generally entertained of the Indus, but at other times, when the fall of water has uncovered the shelving flats, and contracted the width of its bed, the illusion is entirely dissipated. When the tide is out, it becomes in appearance a second-rate river, and, in point of size, is certainly inferior to the other large rivers of the Eastern Hemisphere. The country on either side belongs to Meer Ali Moorad, of Meerpoor. The district on the north side, included between the main river and the Kedywaree branch, is called the Kookewaree Purguna. It is low and flat, and cannot boast a single tree: so scarce is wood about this part of the coast, even for fuel, that I was obliged to send thirty or forty miles for it, and had to pay highly for the small quantity that was brought. In the upper part of this Purguna the land is under cultivation to a considerable extent, but even there it is very swampy, a very small portion being sufficiently elevated to be out of reach of the tide. The marshes near the sea occupy half the district, and yield nothing but grass or rushes. The soil in general is good, but in some parts it is loose and sandy, and a saline incrustation appears on the surface. The Kookewaree Purguna is thinly populated; there are not many villages, and these are situated in the upper part. The main river once took its course through a part of this district, but about twelve or fifteen years ago it forced a passage for itself further to the eastward. The old steep bank is still visible, running in a very broken and irregular line: the land gained from the water has risen to within a foot of its summit, and now forms an extensive morass, full of small creeks, and covered with thickets of high reeds. The lower part terminates in a large creek issuing upon the main river, and on the opposite side there is another, called the Babooloo, that leads to the old Gorah mouth. Along this line the river of that name formerly took its course.

On the left bank of the river the country for some miles is bare of trees or bushes, and affords excellent pasturage, being chiefly occupied by extensive tracts of grass land. Near the sea, rice is also produced

in large quantities. At Betree, a large village at the head of the first reach, the Mootnee branch is not more than two or three miles distant, and boats can be seen in it very distinctly. Betree was formerly a large town, and the residence of one of the superior chiefs; but, from some cause connected with the alteration of the river, has been gradually deserted, and now does not contain above a dozen scattered huts. Near it there is a large backwater, seven or eight feet deep, from which numerous canals conduct the water to every part of the grassy plain between the Mootnee and the main river.

In the Kedywaree we found eight or ten Kutch boats lying at one of the villages, taking in cargoes of rice. This is the first time that large boats have been able to navigate this branch, the depth of water not being sufficient before to admit of their entering it. If the Hujamree becomes closed, the trade of Vikkur, or at least a considerable portion of it, will probably be transferred to this channel, and the goods imported sent to the upper parts of the Delta by the main stream: the cotton brought to the Kedywaree by the Kutch boats this year was taken to Tatta by that route. In the Kedywaree we first saw otters, which abound: they are of two kinds—brown and black. The large tortoise is also common; they are seen in great numbers in the water, and are frequently met with crawling about the fields.

In the course of the survey we arrived at the large village where I had been stopped about two months before. As we approached it, the principal Zemindars came down to the boat, and made many apologies for their former conduct, offering us at the same time every assistance we might require. They said, that in consequence of the complaint made to Meer Noor Mahomed on the subject, he had sent down strict orders to them to prevent the people from interfering with us for the future, and dismissed the Hakim or chief from his situation. Our visitors endeavoured to excuse their former behaviour by saying that they had orders to let no one pass up the river without the permission of the Ameers, and I soon made them easy on that head, by telling them I believed it to have risen in a mistake, from instructions not having been forwarded to them in time from Hyderabad. Amongst them there was an intelligent old man, who was treated by all the party with great respect: to him was awarded the seat of honour; and the chiefs took great pains to explain to us that he was a Peer or saint. In the course of conversation, he alluded to the progress we had lately made in Sind, and remarked, in answer to an observation I had made, "Ah, I see how it is: it is all up with the Ameers now!" I told him there was no fear of the English ever acting in an unfriendly manner towards them, and instanced what had lately been done when Shikarpoor was attacked by Runjeet Sing. He said it was true, and he

was only joking; observing at the same time that "the English were favoured of God, for they knew everything, and could do anything." Aware of the influence possessed by these Peers over the minds of the Natives, I endeavoured to conciliate the old man, by a few trifling presents, with which he was greatly pleased. Before we got clear of the village, a calf and some rice were brought down as a present from the Hakim. After what had occurred on my first visit to this place, the reception we met with on this occasion was gratifying, and is a proof that notwithstanding the assertions of the chiefs, who are all followers of the Meerpoor Ameer, they dare not venture to disobey any orders they may receive from Hyderabad.

About two miles above this village there is a ferry-boat constantly stationed, which is the only one on the Kedywaree. We remained near it two days, in consequence of the unsettled state of the weather, and received a visit from two more Peers or saints. One of them was travelling about in his own doondee, to collect alms, and the other was attended by several mounted followers, well dressed and armed. These impostors are frequently young men, and although they profess to subsist entirely on charity, are better clothed, fed, and lodged, than any other class of the Natives: they are invariably shrewd and intelligent.

About the Kedywaree, and lower part of the main river, the population is composed of a mixture of many tribes; and this, indeed, seems to be the case throughout the Delta. Besides Beloochees, Jutts, Hindoos, and Jokeeas, there are many families of Jairs: they originally belonged to the Jhareeja tribe of Kutch, and number about 1,000 individuals. The Dhools are also from Kutch: small parties of them are met with about the Kookewaree mouth, and their distinguishing peculiarity is that they always take the name of their great-grandfather. There are also a few villages inhabited by Puthans, and people from Mooltan, the Punjaub, and Bhikaneer.

A few of the villages in the Delta are removed from time to time, and the inhabitants travel long distances in search of pasturage for their flocks: we fell in with a large party of Jutts on the main river, who said they intended, when the swell commenced, to proceed to the banks of the Fullailee. The Natives generally are not, however, such an erratic race as is supposed; for on passing this year through the Hujamree, the banks of which are more thickly populated than any other part of the Delta, I observed that not a single village had been removed from its former locality.

The condition of the lower classes of the peasantry in Sind, especially near the sea coast, is truly wretched: unable to obtain a sufficiency of food or clothing for themselves, it is quite out of their power to provide for the wants of a wife and family, and they never marry. The

consequence of this miserable state of existence may easily be imagined: theft is common, and many of the villages are full of public women of the lowest description, living in a state of hopeless poverty. Disease is also prevalent to a frightful extent, and we never approached a village without being besieged for medicines by numbers in whom its ravages were disgustingly apparent. On several occasions I was much amused by people coming down to the boat, and asking if we had brought any English goods for sale: one wanted a pair of scissors for his wife, another some cheap cloth, and a third a little brandy for a sick relative; for the payment of which they had brought fowls, butter, milk, &c. They were sadly disappointed when told we had not come there to trade, and agreeably surprised when I occasionally gave them the articles they wanted, and paid them for what they had brought besides.

On quitting the Kedywaree, after the survey of it had been completed, we were detained some days near its confluence by the state of the weather: a strong breeze, or rather a succession of squalls, set in, accompanied by thunder, lightning, and rain, with a dense cloudy atmosphere, which continued two days. The same kind of weather was experienced last year when in the Hujamree branch, at about the same period, and I believe it indicates the termination of the north-east monsoon in Sind: we had nothing but light breezes from that quarter afterwards, and the westerly winds began to be felt in the upper part of the Delta.

The first village of any size on the main river is Meeahn, situated on the right bank, about ten miles from its mouth, and inhabited entirely by fishermen. Here the man who farms the tax on the river fishery resides: he pays Rs. 1,600 per annum to the Ameers, and is entitled to one-third of the quantity caught. As the river divides the territories of two Ameers, and is considered common to both, the profits accruing from the fishing villages on its banks are equally divided between them. The fish obtained in greatest abundance is the Pulla: it is of a most delicate and delicious flavour, but, from the quantity of oil it contains, so extremely rich, that many people cannot eat it; like most fresh-water fishes, it is extremely bony. I do not think it is peculiar to the Indus, for it appears to me the same as the Hilsa Mutchee of Calcutta: our Portuguese servants, also, said it was abundant in the rivers about Goa. The mode pursued in catching it is as follows:—A small doondee is taken to the middle of the stream, provided with a number of earthen pots or vessels, each of which is capable of sustaining a man with his nets above the water: they are about four feet in diameter, and resemble two shallow pans joined together at the edges, with a small hole at the top. Upon these pots the fishermen recline, and pushing

themselves along with their feet, lay out a long narrow net, supported by small reed floats, across the current. This is allowed to remain until they have floated down with the tide about a mile, and then hauled in. As the fish are taken from the net, they are killed and put into the pan. The earthen pots employed are made very light and thin, and are so buoyant that they will support two or three men: they are much used by travellers in crossing the rivers.

There is also another method of catching the Pulla, by a small bag net, attached to a long forked pole: this is kept in a perpendicular position under water until a fish enters it, when it is suddenly tossed up in the air, and the fish secured.

The country about Meeahn is extremely sandy: on the opposite side of the river the heaps of loose sand are eight or ten feet high, and it prevails more or less throughout this part of the Wanyanee. Here barley cultivation is first seen, and there are a few spots cleared for gram and vegetables; the latter are also reared in small quantities on the sea coast.

At Unnee, a small village a short distance above Meeahn, and on the same side of the river, two ferry-boats are constantly plying. At this spot, which is about five miles from Vikkur, the bed of the old Ghorah river is still visible: the ground is furrowed for a breadth of four or five hundred yards, and thinly covered with tamarisk bushes, mixed with clumps of reeds.

Near this village there is a dry bare flat, extending some distance down the river, in the form of a long spit or tongue of land: the deep but narrow inlet between it and the steep bank is the favourite haunt of alligators;—we saw four, and they never left the spot during the two days we remained near it. This was the first time we had seen them: they were of enormous size,—at least thirty feet long,—and of that species with a long narrow snout. An American seaman, belonging to the vessel, declared he had traversed all the rivers of the New World, and seen alligators innumerable, but none that could be at all compared with them in magnitude. The Sindian boatmen told us they were much smaller, but more rapacious, further up the river. The large ones rarely attack a man, and, as evidence of this, we saw the stream in the vicinity covered with fishermen on pots, catching Pulla.

About thirteen miles from its mouth, the Indus formerly threw off a large branch, called the Mootnee, which was discharged by the Kaher mouth: within the last ten or twelve years it has become choked at the confluence, and now can scarce be said to have any communication with the main stream. The space filled up forms a triangle, each side about a mile and a half long, and the plain that occupies its bed is four or five feet above the level of the water. The old steep bank enclosing

it is everywhere visible, and covered with high, thick tamarisk jungle. In many places, where the inundation has cut out deep furrows, the nature of the deposit is seen : it is generally sand, but alternate strata of pure clay and soft sand frequently occur. A portion, however, is composed of hard clay, and this is overrun so thickly with young tamarisk plants, that at a short distance the ground appears as if covered with fields of grass. The river has apparently flowed last through the centre of the plain in a stream about a hundred yards broad : there are still two small creeks, formed of the irregular holes left in its bed, but both are separated at low-water from the main river by a broad bar of sand, and as there is not a greater rise of tide, even on the springs, than two feet, none but the very smallest boats could pass into them. Close to the water a small elevated spot, covered with trees, rises abruptly from the plain, like an oasis in the desert; it forms a picturesque object, and has probably been an island. At the apex of the triangle the banks contract to about six hundred yards, and the river, turning slightly, pursues a course to the SSW. For about two miles it is dry, with the exception of the narrow creek before mentioned, and for some distance lower down very shallow.

Three miles above the Mootnee, the destroyed bed of the old Mull river is seen : at the junction it has suffered a similar fate, and is equally large. It must have been abandoned some years before the Mootnee, for the land is in a more advanced stage of formation, and in many places overrun with high bushes ; in other parts several acres of ground have been brought under cultivation. The northern side of the plain is bare, and covered with hillocks of fine white sand, which in high winds is blown about in clouds : through this part the waters of the inundation find an outlet. There are still several pools here and there, but they are not connected. At the point where the banks contract to the breadth preserved by the river lower down it is six or seven hundred yards wide, and turns with a sharp bend to the eastward. I saw down it for a distance of about two miles, but could not perceive any water. When Lieutenant Pottinger passed down the river last year, he found a creek, thirty yards wide, running through the bed of the Mootnee, and a smaller one at the Mull : the latter has disappeared altogether, and the former will probably share the same fate before another season has passed. The cause of the changes that have taken place in these two rivers is apparent in the nature of the soil, which about this part of the Delta is extremely loose and sandy : the banks of the main river are continually falling in from the same cause.

At the junction of the Mull, eight men came down to a flag that had been erected a short distance inland, and forcibly carried it away : on

the European seaman who had been left to take care of it attempting to prevent them, they drew their knives, and told him, with a significant gesture, "to take care what he was about." They were not Beloochees, but belonged to a gang of robbers from a distant part of the country, and had been plundering some of the neighbouring villages.

About a mile above the Mull a canal was cut two or three years ago, five or six yards broad, from the main river to that branch; the inundation deepened and widened it, and at the shallowest part it has now a depth of two feet at high tide. The banks are perpendicular, and about eight feet high, and thirty yards apart; the water, however, does not occupy above one-third of this breadth in the dry season. The Natives call it the New Mull, and in a few years it may, perhaps, become entitled to the appellation of a river.

Nearly opposite the canal is situated the village of Alyabad: it is of some size, and has a market for vegetables, which are produced here in large quantities. Amongst the cultivation I noticed, besides barley, rice, and moong, the carraway plant, garlic, bajree, and chillies. In the interior the land is overrun with jungle, but there are open spots here and there of reeds or rushes, and patches of ground cleared for agricultural purposes. Game is abundant. About Alyabad the river bank is nine feet high, and the trunks of all the trees are marked to the height of five feet, as if they had been under water to that extent. This gives about fourteen feet as the total rise of the river during the swell in the Delta. The inundation bank is here seven feet high; it is thrown up about fifty yards inland, and extends on both sides of the stream nine miles below Alyabad: above that village it frequently recedes some distance from the banks, but we managed to trace it in a continuous line as high as we ascended the river.

A short distance above Alyabad a low flat projects into the river from the right bank. Off the point of it, a vessel called the *Futteh Jung*, said to have mounted forty guns, was wrecked; about two years ago her upper works were visible above the water, and the Natives succeeded in taking out her masts, and some of the casks from the hold. She has since sunk in the mud. There is another in the Hujamree, and, it is said, two or three in other parts of the Delta. Many men are still met with, who served on board these vessels in their youth. At the period when the Belooch Chiefs succeeded in wresting the government of Sind from the Kulhora Princes, the Delta appears to have been ruled by independent Rajas: two of them, the Jam of Kukrala, and the Jam of Darajah, were powerful, from the large fleets they possessed: the former, it is asserted, had fourteen or fifteen vessels of war, mounting from six to forty guns. In the histories of Sind, it is mentioned that these chiefs

combined several times, and brought their ships from the sea into the rivers, plundering the country as high as Tatta.

At the bottom of the long reach in which the Seeahn is thrown off there is a large village, called Panjgudjer: here sugarcane cultivation is first met with. Panjgudjer means five yards, and the village owes its name to the following circumstances:—About twenty-five years ago the chief of the district cut a canal near it to the Mull river, which was "Panjgudjer" or five yards broad: the inundation increased its size and depth so much, that it became a small river, but afterwards filled with mud, and dried up altogether; he then opened another, two or three hundred yards above it, but this met with exactly the same fate; and the present Kardar is now cutting a third through the bed of the first one. This gives some idea of the continual labour required to keep the canals open, and fields in the interior properly irrigated. The left bank of the river, from Panjgudjer to the part opposite the Seeahn, forms the western boundary of the Kotehar Purguna: it belongs to Meer Ali Moorad, and extends ten Sindian kos (thirty miles) inland.

On approaching Panjgudjer, some people we met told us a man of high rank was living there, who was an Ameer, and a near relative of Meer Ali Moorad of Meerpoor. I immediately sent the interpreter to make the usual compliments, and inform him that I wished to put up a flag near the village. The reply brought back was, that if I attempted it he would send some men to cut it down; that I might put up as many as I chose in Meer Nusseer Khan's territory, on the opposite side of the river, but not in Meer Ali Moorad's. The interpreter was directed to return and inform him that I wished to have an interview with him. It appears he was doubtful whether I should treat him with proper respect, for he repeatedly asked the interpreter what sort of a man his master was, and if he spoke *sweet* and *gently:* the answer being satisfactory, he said he should be happy to see me, and that the flags might be erected, but must not be kept up longer than a few hours. On entering the hut in which Meer Ali Khan had taken up his abode, I found him surrounded by his attendants and armed followers: he appeared an intelligent, lively man, about forty-five years of age, and was dressed in much the same style as the petty chiefs of the country, several of whom came in whilst I was there, to pay their respects. As soon as the profusion of compliments with which the Sindians greet strangers had been exhausted, and he had requested me to be seated, I mentioned the object of my visit, telling him that it was not my intention to do anything contrary to his wishes, but that if he would not allow us to put up as many flags as we pleased, I must send an express to Hyderabad immediately, and inform His Highness Meer Noor Mahomed of the circumstance. He hastily replied—"Oh! there is no

occasion for that: you can put up as many as you like; only do not keep them up longer than you can help." Then came the storm of questions, for he was very inquisitive, and, by his own account, had never met a European before. How old was I? Was I married? Did the king's brothers ever come to India as Governors? How much pay did the Governor and Commander in Chief receive? In what manner were the military officers paid? Was it by grants of land, as in Sind? Did we eat fat? Had we such a large river as the Indus in Europe? Was it true that we dug guineas out of tanks?—and an infinity of questions of the same kind. I remained with him nearly two hours, and on going away he expressed his pleasure at my having visited him: he also asked if I would send any message to Meer Ali Moorad, for, having finished his business in this part of the country, he was about to return to Meerpoor. I requested him to make my compliments, and tell Meer Ali Moorad that I had every reason to be satisfied with the reception we had met with in his territory. In the evening he sent on board a sheep, with some rice and butter. The result of this interview with Meer Ali Khan was satisfactory, for many reasons. The Meerpoor Ameer is well known to be inimical to the English; but the conduct of this man, a near relative, shows, that although he may have every inclination to throw obstacles in our way, and prevent us from carrying into effect our views with regard to the Indus, he is not sufficiently powerful to venture to act in a manner contrary to the wishes of the Hyderabad Ameers.

Shortly after we had quitted Panjgudjer, one of the officers was taking angles at a flag station, when a Belooch soldier came up, with a crowd of villagers. He was apparently very indignant at our being allowed to hoist flags in Sind; and after some conversation had passed on the subject, said, "Do you know what Meer Sobdar did last week? He killed fifty Sindees who wanted to see the English in Sind, and he is soon going to turn you, your flags, and your Hikmuts (inventions) for measuring the water, out of the river together." The officer laughed heartily at this; and he went off in a rage, saying, "Ah! I shall not be too old to kill ten or twelve of you, when you come to take the country!"

About five miles above the confluence of the Seeahn, and on the right bank of the river, the dry bed of a stream is seen, which I traced through the jungle for a distance of two or three miles: the banks are about two hundred yards apart, and plainly discernible throughout. In most parts the bed is almost level with the land, and overrun with bushes, but they are not so high or dense as on the banks. Deep dells are met with here and there along its course, that are now filled with an impervious mass of underwood. This stream was called the Nair, and is said to have been a river of considerable size, flowing from the

Buggaur; it was also connected with the present Seeahn or Hujamree branch. Twelve years ago, there was a stream of water in it 100 yards wide, and before that period it was more than double that breadth: it appears to have pursued a course to the southward, across the present main river, which was not then in existence, and to have emptied itself by a mouth, now unknown, to the south-east of the Mull. Rather more than a mile above the Nair, and on the same side, there is another abandoned river, called the Moograh: its bed is only partly filled up, and between the steep banks it runs in a succession of deep hollows, that have pools of water in them throughout the dry season. It is 150 yards broad, and the jungle has not yet commenced to spring up. The Natives say it has been in this state for the last fifteen years, and that it was thrown off from the Buggaur. About three miles inland, a small branch joined it to the Nair, called the Haram Khaneh, and the beds of other small creeks are visible in every direction in the narrow tract of country between the two rivers.

A short distance above the Moograh, but on the opposite side of the main river, the destroyed channel of another large branch is met with, that was formerly called the Killan. At the confluence its bed is now upon a level with the adjacent plain, and in the centre there is a large village, named after it, surrounded with fields and groves. For the first mile of its course, the marks are faint, and spread over a wide extent of surface; but beyond that the channel is only half filled up. I walked up it to the eastward nearly two miles: the banks, 200 yards apart, rise on each side to a height of six or eight feet, and the lofty trees with which they are covered, contrasted with the low bushes in its bed, give it the appearance of a long straight glade cut through a forest. At one spot it widens considerably, and here the scene is one of wild and natural beauty: a small transparent lake, that reflects every object from its calm, unruffled surface, has been left by the inundation, and this is enclosed by high irregular banks, overhung with trees placed in most picturesque groups, amongst which the mango, the banana, and the tamarind are conspicuous. I certainly never expected to fall in with such a spot in Sind, least of all in the Delta. A man who was with me said that the river was open fourteen or fifteen years ago, and that he had often bathed in it at that period. It appears to me probable that the Killan formed the lower part of the Moograh.

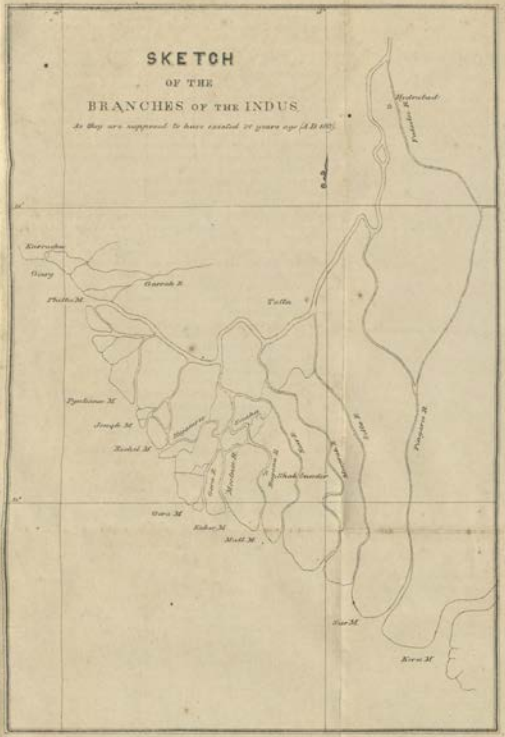
Another large deserted branch is said to be visible about twelve miles higher up, on the same side, called the Setta: it was a navigable stream fifteen years ago, and that part of the main river so called at present owes its name to having once formed a part of it.

The grand alteration which destroyed all these branches, and which appears to have completely changed the face of the country in the Delta,

is said to have happened about eighteen years ago. I was fortunately able to obtain some information from the Natives respecting it, but as none of them possess any knowledge of the country beyond the immediate vicinity of their own villages, I have not been able to trace the course of the destroyed rivers entirely to my own satisfaction. Much information still remains to be gained on this subject, and it is by no means an unimportant one, since a correct knowledge of the remarkable changes that have taken place in this very inconstant river will afford the best data for enabling us to form an idea of the difficulties that will be encountered hereafter in navigating it. I have, however, collected sufficient to give a general account of the rivers of the Delta, as they existed before the change took place, and this, I have reason to believe, will not be found far from the truth.

About twenty years ago the Indus flowed to the sea by the Buggaur; and the Setta, or Great Eastern Arm of the maps, which at present forms the lower part of the main river, had no existence:* this fact, which on my first visit to Sind I was inclined for many reasons to doubt, is asserted by all the Natives, and corroborated by the report of the gentlemen attached to Mr. Smith's Mission in 1809, who found the river emptying itself by the Phittee or westernmost mouth. At this period the Buggaur threw off numerous branches; but although some of them were navigable for large vessels, none appear to have attained a greater average breadth than 300 yards. The Setta was the first that quitted it below Tatta: it was not very broad, and after pursuing the same course as at present for a few miles, turned more to the eastward, and traversed the country between the Mull and the Pinyaree in a SSE. line. The Moograh was thrown off some distance below it, and, having joined the Killan, flowed to the sea in nearly the same direction as the Setta. Ten or twelve miles further down the Buggaur sent off a larger branch, which divided into two rivers a short distance below its confluence. The Nair appears to have been one of them, and to have approached close to the Moograh, with which it was connected by small creeks. The lower part of this stream I was unable to trace; but, from the imperfect accounts of the Natives, I suppose it to have flowed to the sea in nearly the same line as the other two. Between the Mull and Seer mouths, a distance of thirty-five miles, the Sind Coast has not been explored: there are no rivers discharged in that part of it; but, from the report of the fishermen, several small creeks are met with, that run eight or ten miles into the land. The three destroyed branches of the Buggaur—the Setta, the Moograh, and the Nair—must have traversed that part of the Delta lying between the Mull and the

* I have since seen some old maps of the Indus, and in all the Setta is laid down as a small creek.


SKETCH
OF THE
BRANCHES OF THE INDUS.
As they are supposed to have existed 20 years ago (A.D. 1837)
Hydrabad
Karachi
Gary
Garrah R.
Phulla M.
Tatta
Pyaliana M.
Jungh M.
Rishel M.
Shahbandar
Gara M.
Kaher M.
Mull M.
Sur M.
Kora M.

SKETCH
OF THE
BRANCHES OF THE INDUS,
As they exist at present (A.D. 1847)
Hydrabad
Karachi
Gary
Garrah R.
Phulla M.
Tatta
Pyaliana M.
Jungh M.
Rishel M.
Shahbandar
Kaher M.
Mull M.
Sur M.
Kora M.

Pinyaree, and reached the sea at this part of the coast; the creeks described by the fishermen are in all probability the remains* of their mouths, and lower part.

The account given by the Natives of the changes that have occurred in the lower branches of the Buggaur is extremely vague and unsatisfactory: portions of destroyed rivers, however, are met with here and there throughout the line of the Hujamree river, and these afford a clue by which their courses may be traced. I have before mentioned that the Buggaur threw off a large branch, which divided into two rivers, and that the Nair was one of them; the other, which appears to have been discharged by several mouths, was called the Buggana, and the present Mull river formed the lower part of it. It sent off two other branches to the southward, the Mootnee and the Gorah: the course of the latter near its mouth was the same as is now pursued by the main river, and the branch that connected it with the Richel forms a part of the Hujamree river. It is now well known that some of these branches were navigable for large vessels; the line of route by which they ascended to Shahbunder is accurately pointed out by the Natives; and this corroborates, in a great degree, their assertions respecting the course of the lower branches. The Richel was the only accessible mouth: they entered it, and, passing into the Hujamree, through what is now the Kedywaree Creek, ascended that river to a part about ten miles above Vikkur, where it joined the Buggana, on which branch, but considerably lower down, Shahbunder was situated. They could also pass into the Gorah river from the Hujamree, and navigate it down to Betree, then a large town; but, from the shallowness of its mouth, could not enter it from the sea.

From the account of the Natives it appears that a very high inundation or flood sometimes occurs in Sind: from all that I could gather upon the subject, it is experienced once in forty or fifty years, and invariably causes great changes in the lower part of the Indus. It is probably occasioned by a severe winter, followed by a very hot summer, in the countries about the sources of the river, combined with other causes connected with the periodical rains. About eighteen years ago (1819†) one of these floods came down: the river rose several feet above its usual height during the swell, and the strength of the current is stated to have been much greater than in ordinary seasons: whole villages were swept away from the banks, and the crops in many parts of the

* In the old maps, several large rivers reach the sea at this part of the coast.

† It is almost impossible to obtain the exact date of any occurrence in Sind from the Natives; but, if their assertions are correct, this flood must have happened in 1819, the year in which the great earthquake was experienced in Kutch. It is not improbable that both proceeded from the same cause.

country completely destroyed. On this occasion the river altered so much about the part where the Setta was thrown off, that a larger body of water was forced into that stream, and it increased in size considerably. The alteration became greater every successive year, until at last the main stream took its course through the Setta, and abandoned the Buggaur altogether. In the mean time it had forced a passage in a straight line through several small creeks, across the Moograh, the Nair, and the Buggana, into the lower part of the Gorah river, and shortly after opened a new mouth for itself, which is the present Kookewaree. Many of the Natives told me that they remembered the time when there were nothing but creeks along the line pursued by the main river at present, and they were not navigable for anything but a small doondee. Such are the remarkable alterations that have taken place in the Delta within the last twenty years. It is not unlikely that one of the floods which are stated to occur at times in Sind destroyed the Pinyaree and Fullailee, with their numerous branches; and if this was the case, the Delta must have formerly commenced at the part where the latter quits the main river, fifteen miles above Hyderabad. If this supposition be correct, most of the ingenious theories that have appeared of late years concerning the site of Patala, and Alexander's marches in the Delta, must fall to the ground.

The village of Killan contains about eighteen huts, and is inhabited by Hindoos. The country about it is not so much overrun with jungle as in other parts, and there is a large portion of land under cultivation. When at anchor near it, a petty chief, attended by several soldiers, came on board to complain that a man had been wounded by one of our people. He said he had been sent by the Kardar of Bemun-jo-Poora, a village higher up, to whom the circumstance had been related. It occurred in the following manner:—One of the officers, firing at a hare amongst some thick jungle, lodged a few shot in the leg of a man on the other side of the bushes, whom he did not see: the injury he received was trifling, for only four or five had struck him, and the officer, after expressing his regret at the accident, gave him a few rupees. The man was quite satisfied that it was not done intentionally, and went away perfectly contented. I told the chief we were sorry for the accident, but that, fortunately, the man had not received any serious injury. He said it was true he was not much hurt; and, after much talking, hinted that a small present would put everything to rights. Not choosing to comply with any demands of this nature, I said I would settle the affair with the Kardar. When we anchored at the village, the same man came on board, and I then found that the Kardar was not in the place, as he had asserted, but at Hyderabad. It was evident his deputy had merely been trying to get something for himself,

and not having succeeded, very wisely never mentioned the affair again.

Near Bemun-jo-Poora the Indus throws off the Teeteeah, a small stream that joins the Richel three or four miles from its mouth at the village of Mounara: it is not more than thirty yards wide, and, by the report of the Natives, has not a greater depth in many places during the dry season than a foot and a half and two feet. At its junction with the main river it is full of small shoals, and fordable; that there is a passage for small boats to the Richel is evident from the current that was running down it when we were there. Near its confluence it passes Koteree, a large village, pleasantly situated in a grove of fruit trees. A pretty young woman came from this village to the boat, to request our assistance in a matter in which she said none of her own people could help her. All her clothes and ornaments, it appeared, had been stolen a few days before, and she wanted us to tell her who was the thief. I asked her how she came to suppose that we could give her any information upon the subject: "Oh!" said she, in the most confident manner, "the English understand magic, and know everything; I am certain you could tell me, if you chose!" Such is the prevailing belief amongst the lower classes in Sind.

In the thick jungle on the banks of the river, game is everywhere abundant: you can scarcely walk a hundred yards in any direction without putting up several hares, with partridges and quails innumerable. Wild hogs, deer, and an animal which from the description must be the elk, are found in the interior, but seldom approach the rivers. The country is infested with jackals, who prowl about at night, and are very ravenous: they have been known on several occasions to attack men. A lynx and a leopard were seen, but these animals are not numerous.

Very few boats are seen on the main river, and those are small; with the exception of five or six at the ferries, and a few fishing doondees, we did not meet above six or eight during the whole time we were employed on it.

About a mile above the Teeteeah, the survey terminated for the season, in consequence of instructions received a few days before from Colonel Pottinger, the Resident in Kutch, to return to Bombay before the bad weather set in on the Sind Coast.

The Indus has now been minutely examined as high as the Teeteeah, a distance of thirty-five miles, and all the branches it throws off now open, with their mouths, channels, and creek communications. The most dangerous part of the sea coast has also been thoroughly surveyed. The result, as regards the opening of the river for commercial purposes, may be stated in a few words. A vessel drawing six or seven feet may enter it, either by its own mouth, the Kookewaree, or by passing through

the Kedywaree branch, and ascend it as high as the Teeteeah without difficulty. The current is by no means strong, and the channels are sufficiently broad and deep, even when it is in its lowest state. It has also been ascertained that the river undergoes great changes annually, especially at its mouths. This will always render the navigation intricate; but it appears to me probable, that as it must always discharge the same body of water, the channels, although they may have completely altered their position, will generally be of the same average depth. If ever the Indus is much used as a channel for the conveyance of merchandize to the central provinces of Asia, it will be necessary to have a naval officer, or perhaps two, constantly stationed on it, to examine the channels at the commencement of each fair season, and make known the alterations that have taken place. From the prevalence of northerly winds in the fine season, steamers are better adapted to navigate it than sailing vessels: the latter can only proceed by the tedious operation of tracking, and would not make a greater progress than twelve, or at the utmost fourteen miles a day. If the jungle were cleared away along the banks, tracking would be much facilitated, but this I am afraid will prove an almost endless work, for in most places the inundation in two or three years would carry away the bank to the extent it had been cleared.

The kind of boat best calculated for navigating the river has been described in former reports, and I have nothing to add on the subject. The *Mootnee* flat boat was found to answer remarkably well, with a crew of thirty-five men, and provisions for two months: she drew two feet;—if the original plan had been adhered to, which would have given her two feet more beam, she would have drawn less water by six or eight inches, and none of her good qualities would have been lost. In one respect her build admits of improvement,—the bow and entrance are rather too sharp, but this is only found to be a defect when tracking along a bank that is very irregular in its outline, where the current runs in eddies: at these parts the water is thrown off from every small projecting point, and if care was not taken to bring the track-rope from the mast head down to the stem before it struck against the bow, she was driven out with violence into the middle of the stream. The Natives admired her very much, and said they had no boats in Sind that could be compared to her.

On the 10th March 1837 we arrived at Vikkur, on our way to the mouth of the Hujamree, where we expected to find the *Pownah* pateemar ready to take us to Mandvee. She had been seen off the river some days before, but was not able to enter it until the 11th. At Vikkur we found a nobleman of high rank, Nuwab Goolam Shah, who had been sent down to settle some disputes that had taken place,

respecting the grain, between the Chief Ahmed Khan Lugaree and the merchants. In the evening, a few hours after we anchored, a house was observed to be on fire in the centre of the town, and I went with all the crew to assist in extinguishing it: it was the residence of Ahmed Khan, and by the time we got there was in a blaze. A crowd of Natives surrounded it, looking on with apathetic indifference, and about twenty drunken soldiers were staggering about, endeavouring to stop the progress of the flames. Having seen that it was not connected with any other building, and set the people to work, I was on the point of leaving the spot, when a man came up and said the Nuwab desired to see me. He was seated with Ahmed Khan, amidst a crowd of military retainers, watching the progress of the fire. He said he was much gratified at our readiness in coming to their assistance; and in the course of conversation expressed a desire to see the English Doondee, of which he had heard so much. On my telling him I should be happy to show him everything worthy of notice, he said he should pay us a visit next day. On the following morning he came on board, attended by about a dozen armed followers. He is a man of extremely mild and gentlemanly manners, and was plainly but well dressed. Syud Azumudeen, the British Agent, volunteered to act as interpreter on the occasion, and, from his perfect knowledge of the English and Persian languages, I was enabled to explain the use of many things which otherwise he would not have comprehended. In the course of conversation, he said, in reply to an observation I made respecting the treatment we had met with in Sind: "We are all glad to observe the good feeling that now exists between the Ameers and the British Government, and as long as it continues, friendship will increase between the English and Sindian officers." Everything that was likely to amuse or interest him was of course exhibited: on his departure, I presented him with a musical box, and some other trifling articles, with which he was much pleased. Next day I returned his visit, and was very politely received. He said he had been so much gratified with what he had seen, that if I had no objection he would come again alone, and examine everything at leisure. In the course of the day he sent on board a sheep, with some fine rice, flour, and butter; and in the evening the Moonshee carried to his house privately what I well knew he would like—a few bottles of brandy, and liqueurs. He afterwards told me it was most capital stuff, and thanked me for not sending it publicly before his people. During his second visit he was very inqu sitive, asking numerous questions about everything European that he had either seen or heard of. To my surprise he asked me to correspond with him, a request to which I of course readily acceded: he also told me the cause of his being sent to Vikkur; and as it exhibits

the system of oppression practised by the Belooch Chiefs towards the lower orders in Sind, it is worthy of some notice.

The larger portion of the revenue of the Ameers is derived from the produce of the soil, and paid in kind. Their share of the grain is thrown up in heaps, and sold in the husk by their Agent to another inferior servant, called the Umbardar, who is always a respectable merchant. Each heap is called an Umbar, and ought to contain 60 kassas. Ahmed Khan Lugaree, who is a chief of considerable rank, and the Kardar or Agent of Meer Nusseer Khan, to whom Vikkur belongs, attempted this year to defraud the Umbardar of a third of the grain he had contracted to purchase: when the heaps were measured, instead of 60 they were found to contain only 40 kassas. The Umbardar refused to receive them, and preferred a complaint to Meer Nusseer Khan, who despatched the Nuwab to settle the dispute. Ahmed Khan acknowledged the act, but obstinately persisted that he was in the right, since it was intended for the benefit of his master, to whom the money thus fraudulently obtained was about to be remitted. The affair was not settled when we quitted Vikkur, and as Ahmed Khan had thought proper to close the bazar, many Kutch boats had been obliged to leave, and proceed to other ports for a cargo. Ahmed Khan Lugaree is an ill-tempered, rapacious, and obstinate man, disliked by all classes: about a month before our arrival, a fire broke out at Vikkur, which destroyed half the town, and property to the amount of Rs. 9,000 or Rs. 10,000; during the conflagration his followers plundered the houses right and left. Next day he had all the huts and surrounding bushes searched, and found a large quantity of goods that had been secreted amongst them. The owners thought that for once in his life Ahmed Khan was about to perform an act of justice; but they were disappointed;—he gave them about a fourth of what had been recovered, and retained the rest as a reward for his trouble.

Having made arrangements for leaving two of the Officers of the Survey, Messrs. Grieve and Whiteburn, in Sind, to observe the rise of the river during the inundation, I quitted Vikkur with the crew of the flat boat on the 13th, and next day got on board the *Pownah* pateemar, at the mouth of the river. I found the beacon in as good order, and standing as firmly, as when first erected, although it had been blowing very fresh at intervals for the last six weeks: with a telescope I saw it distinctly two or three times when ten and eleven miles distant. When first put up, it caused a great sensation amongst the Sindians, but now no remark is made about it. The Kutch boatmen say it is an excellent mark for entering the river, and that they are not afraid to approach it now, even in bad weather.

REPORT

ON

THE RIVER INDUS.

ACCOMPANIED BY A CHART,

IN FIVE SHEETS.

BY

LIEUTENANT JOHN WOOD,

INDIAN NAVY.

Submitted to Government on the 6th October 1838.

Abstract of Contents of a Report on the River Indus, by Lieutenant JOHN WOOD, *of the Indian Navy.*

CHAP. I.—Construction of the Chart* of the River Indus.
II.—General view of the River Indus.
III.—Navigable character of the River.
IV.—Of the Soundings in Indian Rivers.
V.—Of the mode of Navigating the River Indus.
VI.—Winds and Weather in the Valley of the Indus.
VII.—Of the Boats upon the River Indus.
VIII.—Of Steam-vessels for the River Indus.
IX.—Of Fuel for Steamboats.
X.—Of the Inundation.
XI.—Fords of the River Indus.
XII.—Sites for Commercial Depôts.
XIII.—Indus and Punjaub Rivers.
XIV.—Concluding Remarks.
XV.—Appendix.

* The original Map is on the scale of two miles to an inch; the copy of the Map given in this Selection is on the reduced scale of six miles to one inch.—*Editor.*

Dera Ghazee Khan
Mittun Kote
CHART of the INDUS RIVER
from
Mittun to Attock
1838
By Lieutenant J. Wood
Indian Navy
Sheet No. 1
from
Mittun to Dera Ghazee Khan
Plane Scale of the Geographical Miles to the Inch
Miles
Explanation
Whirlpools or Eddies
Rocks
Encampments of Wandering Tribes or Temporary Arrestees in Sources Unable to Transmission.

REMARKS TO SHEET No. 1 OF LIEUTENANT WOOD'S CHART OF THE INDUS.

NAVIGATION.—From Mittunkote to Dhera Ghazee Khan the soundings in the month of May were tolerably regular, and the continuous channels well defined. I annex the following specimens of the soundings :—

In the Parallel of 28° 58′ *N., Width* 600 *yards.*

½ ¾ 1 1¾ ½ ½ ½ ½ ½ ½ ¾ ¾ 1 1 1 1 1 1 1 1 1 1 1½ 1¾ 2 2½ (current 4.8) 2½ 2½ 2½ 2¾ 2¾ 2¾ 2¾ 2½ fathoms.

Parallel 29° 04′ *N., Width* 635 *yards ; Current* 4.7 *knots.*

1 1 1 1 1½ 1½ 1¾ 2 2 2 2 2 2 4 7 2¼ fathoms.

Parallel 29° 12′ *N., Width* 1,132 *yards ; Current* 2.8 *knots.*

1 1¾ 2 2 2 2 1¾ 1 1¼ 1¼ 1½ 1½ 1½ 1½ ⋮⋮⋮⋮⋮⋮⋮⋮ 1½ 1½ 1½ 1½ ¼ 1 ½ ¾ ¾ 1 1 1 1 1 1 1 ¼ 2 2 2 2 2½ 2½ 2½ 2½ 2¾ 2½ 2¼ 2 2 1¾ 1½ 1½ 1¼ 1¼ 1¼ 1 1 ¾ ½ ½ ½ ½ fathoms.

Parallel 29° 23′ *N., Width — yards ; Current* 4.3 *knots.*

1¼ 1¼ 1¼ 1½ 1½ 1½ 1½ 1¼ 1 ½ ⋮⋮⋮⋮⋮⋮⋮⋮ 1 1 1 1 1 1 1 1 1½ 2 2 2 4 2¼ 1¾ 1½ 1 1 1 1 ¾ fathoms.

Parallel 29° 42′ *N., Width* 1,071 *yards ; Current* 4.8 *knots.*

1 1 1 1 1 1 1 1¼ 1 1 1 1 1 ¾ ¾ ½ ½ ½ ½ ½ ½ ½ ½ ½ ½ ½ ½ ½ ⋮⋮⋮⋮⋮⋮⋮⋮ 1 1 1 ⅝ 1 (current 2.8) 2¼ (current 3.4) 1¾ 2¾ 3 3 (current 4.8) 2½ 2 2 2 2 1¾ 1½ (current 2.8 knots) 2¾ 1½ 1½ ¾ ½ fathoms.

At Dhera Ghazee Khan, between the 30th of May and the 6th of June, the river rose slowly, at the average daily rate of 1½ inch. On the last of these days its width was 2,274 yards ; whole body moving in one stream, and no shoals appearing above water. On the night of the 6th June the water fell eighteen inches, and next morning the river appeared as if its bed had been drained. It was one confused mass of shoals, looking more like the wreck of what had once been a noble river than the Indus in the month of June. On threading my way through the sandbanks, I found the main stream flowing under the east bank, deep, and rapid, but measuring only 259 yards broad. The following is its section :—

2½ 3¼ 3½ 2¾ 2½ 2¼ 2 1¾ 1½ 1½ 1¾ 1¼ 1½ 1½ 1¼ 1 1 ¾ ¾ ½ ½ fathoms.

ABOVE THE CONFLUENCE.

Indus or Sind.	*Chenab or Panjnud.*
Width 608 yards, current 4.8 knots maximum.	Width 766 yards, current 1.8 knots maximum.
¾ 1 1 1 1 1¼ 1½ 1½ 1¾ 2 2 2¼ 2¼ 2½ 2½ 2½ 2½ 2¼ 2 2½ 2 1½ 1 ¾ ½ ½ ½ fathoms.	2½ 2 2 1¾ 1½ 1¾ 1½ 2 1½ 1½ 1½ 1¾ 2 2 2¼ 2 1½ 2 2¼ 2 1½ 1½ 1 ¾ ½ ½ ½ ½ ¼ fathoms.

INUNDATION.—Its extent is traced upon the face of the Chart. One peculiarity is worth noting : in the Doab between the Indus and Chenab, all canals are cut from the former river. On the banks of the latter, the canals are used to irrigate the

grounds fringing the river, not the central districts of the Doab. Even towns on the Chenab, such as Aliepoor and Khyrpoor, are supplied with water from the Sind. Travelling between the two rivers in July is nearly impracticable, the road is so cut up by offshoots from the Indus, all endeavouring to force a passage into the Chenab. At some places dams are thrown up along the banks of the former river, to retain its surplus waters, but these are often burst, as happened this year (1838) to that of Kinjur, and the surrounding country flooded. The very early commencement of the freshes in the Indus (in March) affords a ready solution of the facts here detailed. Near the confluence the Chenab occupies a wider bed than the Indus, though it does not discharge nearly so much water. On the west bank of the river there are two roads leading from Mittun to Dhera Ghazee Khan, but the outer only can be travelled in the season of the periodical swell.

PERMANENT BANKS.—In this Sheet I have been unable to trace the outer banks of the river: the last vestige of them disappears at Kinjur.

FERRIES,

Mittunkote to Dhera Ghazeekote.

Moorpoor and Wung	2	boats.
Sunwalla and Nowshera	4	„
Khankhur	5	„
Seri Meeanee	6	„
Sheroo	6	„
Kinjur	8	„
Koraishee or Dhera Ghazee Khan	22	„
Total	53	boats.

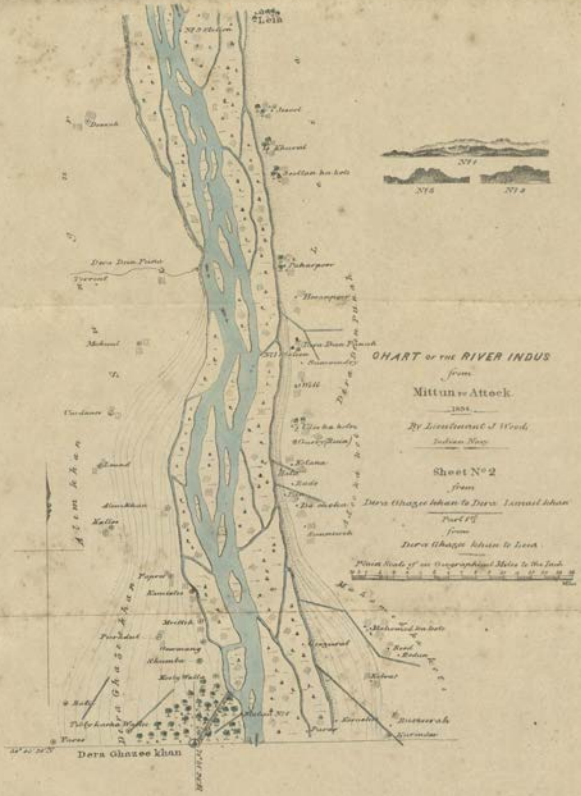


CHART of the RIVER INDUS
from
Mittun to Attock
1834
By Lieutenant J. Wood,
Indian Navy
Sheet N° 2
from
Dera Ghazee khan to Dera Ismael khan
Part of
from
Dera Ghazee khan to Leia
Dera Ghazee khan

REMARKS TO SHEET No. 2 (PART 1ST) OF LIEUTENANT WOOD'S CHART OF THE INDUS.

The Sooliman Range between the two Dheras is generally from thirty to fifty miles distant from the west bank of the river. A table-topped mountain, called the Tukht, or Throne of Sooliman, is the highest in the chain, and to it an elevation of 12,831 feet of perpendicular height has been assigned. My measurements do not raise it to more than 10,086 feet above the river, or 11,000 feet from the sea.

Sketch No. 1 gives a view of the chain; No. 2 is an outline of the Tukht, when it first comes in sight; and No. 3 its appearance as seen from Dhera Ismael Khan.

In the Geological Manual of Henry T. De la Beche, the line of perpetual snow in the parallel of 32° N. is fixed at above *11,000 feet.* The Tukht lies in a lower latitude (31° 38′ N.), but it is only covered with snow in the winter months.

The neighbourhood of these mountains gives rise to gales of wind, that often come down upon the river in great fury. They are always attended by thunderstorms and rain, but, giving plenty of warning, are for the most part harmless.

FERRIES.

Dhera Ghazee Khan to Dhera Ismael Khan.

Peer-ka-Puttun	2	boats.
Dhera Deen Punah	3	„
More Jungee	3	„
Futty Khan	3	„
Gurong	3	„
Kaheree	14	„
Soghee	2	„
Kutmulla	2	„
Total...	32	boats.

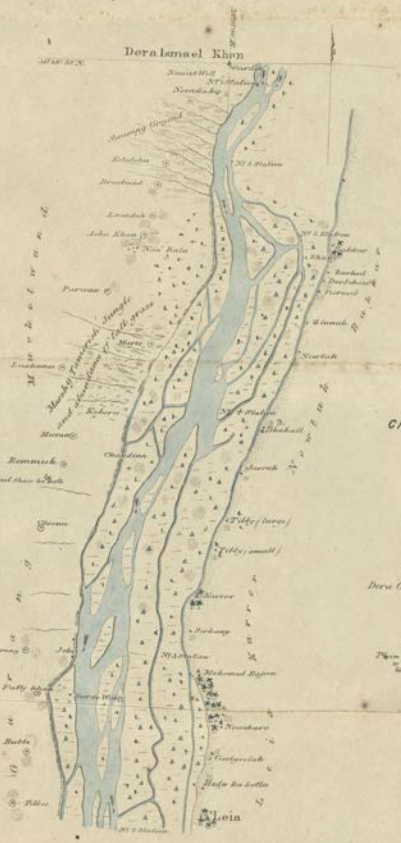


CHART of the INDUS RIVER

from

Mittun to Attock

1838.

By Lieutenant J. Wood.

Indian Navy.

Sheet No 2

from

Dera Ghazee Khan to Dera Ismael Khan

Part 3d

from

Leia to Dera Ismael Khan

Plain Scale of 20 Geographical Miles to the Inch

REMARKS TO SHEET No. 2 (PART 2ND) OF LIEUTENANT WOOD'S CHART OF THE INDUS.

NAVIGATION.—Without adverting to the fact of the river between Dhera Ghazee and Dhera Ismael Khan having been mapped in the month of June, the configuration of its channels would alone afford evidence of the advanced state of the season when this examination was performed. At only two points in the entire line could I obtain a good line of soundings: one of these places was abreast of Leia, and the other a little south of Dhera Ismael Khan. I append sections of the principal channel at both points. The islands that stud the channel occasion less anxiety to the voyager than their number would suggest. It is otherwise with the ferries; and as one example out of many which may be given, that of Kaheree is now (June 1837) six miles south of the village.

Abreast of Leia; Width of Channel 707 yards.

1½ 1½ 2 1½ 1¾ 1¾ 2 2 2 2 1¾ 1½ 1½ 1½ 1½ 1½ 1½ 1¼ (current 2.6) 1¼ 1¼ 1¼ 1 1 1 1 2 2 2 2 2 1¾ 1½ 1½ 1 1¾ 1¾ 1 1¼ 1¼ 1¼ 1½ 1¼ 1½ 1½ (current 2.7) 1½ 1¾ 2½ 2½ 2¼ 2¼ 2¼ 2¼ 1½ 2 2¼ 2½ (current 4.7) 2½ 3 3½ 2¾ 1¾ 1½ 1½ 1¾ 1¼ 1¼ 1 1 1 1 1 1¼ 1¼ 1¼ 1¼ 1¼ 1¼ 1½ 1½ (current 2.7 knots) 1½ 1½ 1¾ 1¾ 2 2 2 2 2 1½ ¾ ½ fathoms.

Abreast of Dhera Ismael Khan; estimated Width 1,500 yards.

1¼ 1½ 1½ 1½ 2 2 1¾ 2 1¾ 1¾ 2 1¾ 1 ½ ½ ½ ½ ½ ½ ⋮⋮⋮⋮⋮⋮⋮⋮⋮ ¾ 1 1½ 1½ 1¾ 2 2 2 2¼ 2¼ 2½ 2½ 2¾ 2¾ 2¾ 2½ 2½ 2½ 2¼ 2½ 2½ 2½ 2 2 2 1¾ 2 2½ 2 1¾ 1½ 1½ 1½ 1½ 1½ 1¼ 1½ 1½ 1½ 1½ 1½ 2 2 2 2 2 1¾ 1½ 1½ 1 2 3½ 3½ 2¼ 1¼ ¾ fathoms.

BANKS OF THE RIVER, AND EXTENT OF INUNDATION.—As the Indus runs south, its bed widens, and the height of its banks declines, till, in the neighbourhood of Dhera Deen Punah, the latter admit of canals being cut from the river. On both banks this alteration takes place about the same point, though they are affected in a very unequal degree. The west bank, from below Dhera Ismael Khan, is at many places completely worn down by the drainage of the mountains, so that the river, when swollen, inundates a considerable tract of country, the exact extent of which is denoted on the Chart by curved lines coloured blue. The streamlets from the Sooliman Range do not, as our maps represent, join the Indus,—their entire volume is consumed in agriculture. Single dams, thirty miles in length, skirt the base of the mountains, and receive their drainage. These reservoirs are the only means of irrigation; the water, save near the river, being too far from the surface to have recourse to wells. Often, when continued heavy rains fall among the Sooliman Mountains, these constructions give way, when the pent-up water comes down upon the plain, and sweeps onward to the river, not as torrents rush, but its force dispersed in numberless channels. Against calamities from this cause, the exposed towns are protected by a mud wall or bund, which surrounds them.

The principal channel still adheres to the west bank, nor does the river once in its course between the Dheras come in contact with the opposite bank. From Lieutenant Macartney's description of the river, its channels were much the same in 1809; but the course of the Indus has undergone alterations since the Mission to which he belonged was upon its banks. The Dhera Ismael Khan of the Kabool Mission has, with its wood of date trees, been swept into the river. The town had been long threatened. In 1809 it stood within one hundred yards of the stream; but its fate was only consummated in 1829, or twenty years after its perilous site had been remarked by Mr. Elphinstone.

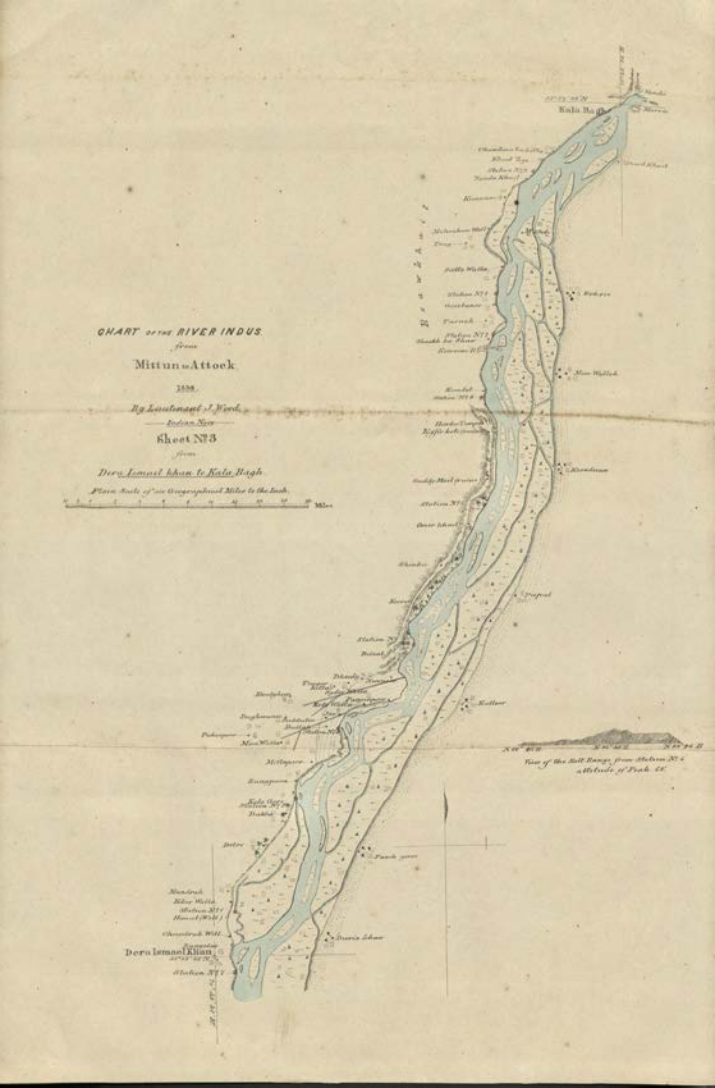


CHART OF THE RIVER INDUS
from
Mittun to Attock
1858
By Lieutenant J. Word
Indian Navy
Sheet No 3
from
Dera Ismael khan to Kala Bagh
Plane Scale of six Geographical Miles to the Inch
Miles
Kala Bagh
Dera Ismael Khan
Station No 7
Station No 6
Station No 5
Station No 4
Station No 3
Station No 2
Station No 1
Kalaur
Mitlopore
Kala Gaga
Dakla
Dotor
Fauch gore
Kaliar
Kandaun
Mon Wallah
Kotlaur
Dugharaun
Pakopore
Mon Wallah
Kunnaur
Kaliar
Kala Gaga
Dakla
Dera Ismael Khan
Station No 7
Station No 6
Station No 5
Station No 4
Station No 3
Station No 2
Station No 1
Kala Bagh
Mon Wallah
Kandaun
Kaliar
Kalaur
Mitlopore
Kala Gaga
Dakla
Dera Ismael Khan
Station No 7
Station No 6
Station No 5
Station No 4
Station No 3
Station No 2
Station No 1
View of the Salt Range from Station No 4
Altitude of Peak 66

REMARKS TO SHEET No. 3 OF LIEUTENANT WOOD'S CHART OF THE INDUS.

NAVIGATION.—This portion of the Indus was examined in the month of July, a time when the freshes are strongest. The waters were then confined to no certain channel, but ramified in every direction. At some places so diffused was the stream, that from a boat in its centre, save the islands upon its surface, and the mountains on its western bank, no other land was visible. Between Dhera Ismael Khan and Kalabagh the permanent bank on the east side of the river was not once seen from the opposite or western bank: it was either obscured by the distance, or hidden by intervening islands. Under such circumstances, I found it difficult to get good soundings, and what are here introduced cannot further benefit navigation than by conveying a general idea of the unevenness of the river's bottom, and the irregularity of its channels.

Station No. 2; Width 1,855 *yards.*

No. 1 Section, West Bank: 2½ 2½ 2½ 2¼ (current 5.8 knots) 2 2 2 (current 4.8 knots) 1¼ 1¼ 1½ 1½ 1½ (current 2.9 knots) 1¼ 1 1 1 (current 4.7 knots) 1 1 ¾ ¾ ¾ ¾ (current 3.4 knots) 1½ 2 1½ 1 1¼ 1 1 1 1 1 ¾ ¼ ½ ½ : ..... : ½ ½ ½ ¾ 1 1 1 1½ 1½ 1¾ 2 2¼ 2¼ 2¼ 2¼ 2¼ 2¼ 2 1¾ 1 1 1 ¾ ¾ ½ ½ ¾ ¾ ¾ ¾ ¾ 1 1 1 ¾ ¾ ½ ¾ ¾ ½ ½ ½ ½ ½ ½ fathoms.

In the same neighbourhood, estimated Width 1,700 *yards.*

No. 2 Section: 1¾ 1¼ : 400 yards : ½ ¾ ¾ ¾ ¾ ¾ ¾ 1 1 1 1 1 1 1 1 1 1 ¾ ¾ ¾ ¾ ¾ ¾ ¾ ¾ ¾ ¼ 2 2¼ 2¼ 2½ 2¼ 2 2 1¾ 1½ 1¼ 1 ¾ ½ ½ 1 1¼ 1¼ 1½ 1½ 1½ 1½ 1½ 1¼ 1¼ 1 (current 0.4) 1 1 1¼ 1½ 1½ 1½ 2 2 2 1½ 1½ 1½ 1½ 1¼ 1 1 1 1 1 1 (current 4.7 knots) 1 1 1¼ 1¼ 1½ 1½ 1¾ 2 2¼ 2¼ 2¼ 1¾ 1¾ 1 1½ 1½ 1½ 1¾ 1¾ 1½ 1½ 1½ 1½ 1¼ fathoms.

Station No. 5; estimated Width of principal Channel 200 *yards.*

No. 3 Section, West Bank: 2½ 5 10 4½ 3½ 2 1½ 1½ 1 ½ ½ ½ : 180 yds. estd. : ½ ¾ ½ ¾ ¾ ¾ ¾ 1 1 1½ 1½ 1½ 1½ 1½ 1¼ 1¾ 1½ 1¾ 1¾ 2 2 1¾ 1½ 1 ¾ ¾ fathoms.

Abreast of Kaffir Kote; estimated Width 1,000 *yards.*

Estimated width 350 yards, current 6¾ knots.

No. 4 Section: 2½ 5¼ 4¾ 4¼ 4 3¼ 3 2½ 2 1¾ 1¼ 1½ ¾ ½ ½ ½ ½ ½ ¾ ¾ ¾ ¾ ¾ ¾

50 yards estimated.

Strong ripple, water breaking, depth 2½ feet 1 1 1 1 1 1 1 1 1 1¼ ¾ 1 1¾ 1¼ 1 ¾

500 yards estimated.

heavy ground swell, depth under 3 feet, broken water, cutter almost swamped 1 1¾ 1½ 2 1¼ 3½ 3½ 2½ fathoms.

Station No. 7; estimated Width 900 *yards.*

No. 5 Section: 1½ 1¼ 1¼ 1½ 1½ 1½ 1 1 1 1¼ 1¼ 1½ 2 1¾ 1¼ 1 ¾ 1 1 ½ ½ ½ ½ ½ ½ : ..... : 1¾ 3 3½ 3¾ 3½ 3¾ 2 2 1½ 1¼ : ..... : ½ ¾ ¾ ¾ 1 1 1 1 1 1 1 1 1¼ 1 1½ 1½ 1¾ 2 1¾ 1 ¾ ½ ½ ½ ¾ 1 1 ¼ 1 1 ¾ 1 1 1 1 1 1 1¼ 1 2 1¾ 1½ 1½ 2 1½ 1¾ 1¾ ¾ 1 1 1 ¾ ¾ ¾ 1 ½ 1 1¼ 1¼ 1¼ 1¼ 1 1 1 1 1 1 1 1 1 1¼ 1½ 1¼ 1½ 1½ 1 ¾ 2 1 fathoms.

COURSE OF THE RIVER.—The principal channel adheres throughout to the west bank. For many years past the river has been edging in this direction: within the recollection of men still alive, a strip of ground a mile in width has been shorn from the territories of the Esaw Khail. Kussore is yearly becoming less, and the river threatens at no remote period to wash the base of the mountains under which this district lies. Omerkote, a village in Kussore, had at one time seven wells set apart to agriculture, but three are now ample to irrigate what cultivable land the river has left.

On escaping from the mountains, the river enters on the Desert, through which it winds much beyond the limits of this Sheet, in its onward course to the sea. In the lapse of ages it has scooped for itself a deep and wide bed, which every year enlarges. So sunk is this channel, that the waters of the river cannot, when the floods are highest, be made to irrigate the soil on either bank: well water is, however, found at a moderate depth, and though the outer banks of the river be sterile, its bed contains alluvial tracts of exuberant fertility.

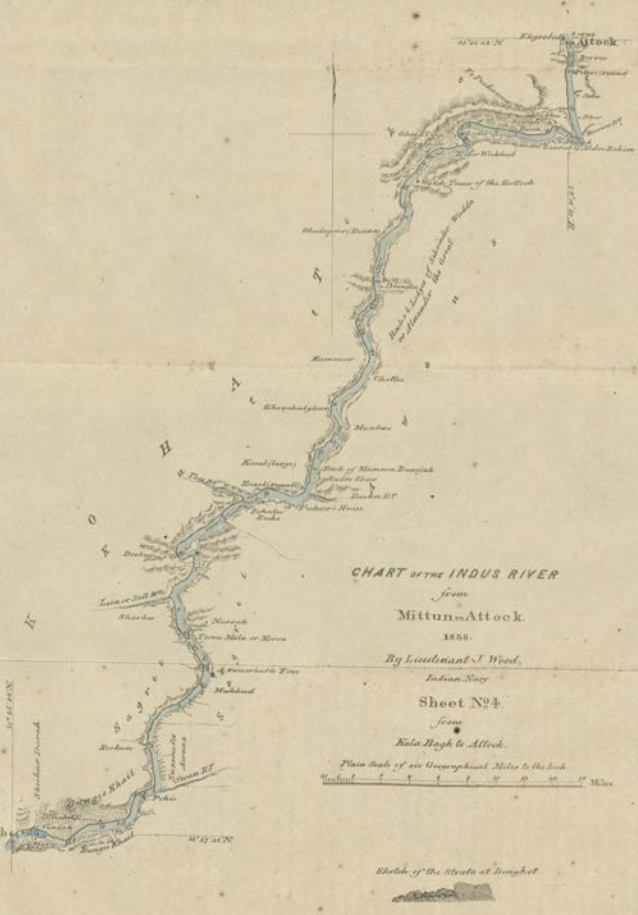
A section of the river's banks here (where they are 31 feet high) shows a wall of red earth or sand, destitute of strata. Pebbles are embedded in it as low down as Chandina-ka-Kote. The mountains that edge the river for some distance on the west bank are of limestone formation, containing large quantities of shelly remains. They rise about 2,000 feet above the river, or 3,000 from the sea. From their neighbourhood the first view is had of the Salt Range, lying east of the Indus; and the Kalabagh Hills. I annex a Sketch of the most prominent portion of the former. (Vide Sheet No. 3.)

INUNDATION.—In the Esaw Khail Country, the outer or permanent bank of the river measured 33 feet in height. Between Kalabagh and Dhera Ismael Khan the bed of the Indus is everywhere equally well defined, and in this portion of the river's course the only inundation that occurs is a small local tract in the neighbourhood of Paharpoor, where the high bank has been worn down by the drainage of the mountains.

FERRIES.

Dhera Ismael Khan to Kalabagh.

Kanjun	4 boats.
Lar	2 „
Ranjunpoor	3 „
Beloat	2 „
Omer Khail	1 „
Esaw Khail	12 „
Kalabagh	12 „
Total	36 boats.


Attock
Kala Bagh
INDUS
CHART OF THE INDUS RIVER
from
Mittun to Attock.
1858.
By Lieutenant J. Wood.
Indian Navy.
Sheet No 4.
from
Kala Bagh to Attock.
Plain Scale of six Geographical Miles to the Inch.
Sketch of the Strata at Dinghot

REMARKS TO SHEET No. 4 OF LIEUTENANT WOOD'S CHART OF THE INDUS.

From Attock to Kalabagh, independent of the ranges named after these places, the river cuts through three principal ridges, and winds among smaller ones for the entire distance. Where the hills fall back, the river's banks still continue steep, and are much cut up by torrent courses. From the Attock range to the Hurroo river the banks are shelving, and pebbly.

The general direction of the ridgy chains, save that of Kalabagh, is east and west. The Salt Range, after crossing to the west bank of the Indus, takes a curve to the north, and sends out a spur equally large to the SW. Below Attock the strata of the slate are vertical, and appear to dip at about 45°. At Nil-aub a dark blue limestone succeeds the slate, and the river for a considerable distance winds in a westerly direction through its largest valley. In numerous places the limestone is covered with red sandstone. On the latter vegetation is scant, but the former produces the Foolabush in abundance. This wood makes an excellent fuel, but is two small and crooked for other purposes. At Doondee and Doobur similar ridges cross the river, but no very high hills occur till Kalabagh is approached. Here there is a similar range to that of Nil-aub, and on a projecting shoulder of it is the site of Ding-ghot, an ancient place of some celebrity in the early annals of Hindoostan.

Below Attock the width of the river (when bridged) is 540 feet, and its depth 10 fathoms. Lower down, its bed is much more contracted. Between Kalabagh and Attock the greatest depth of water is 186 feet. The bottom is rocky throughout.

Section of the River's Bed, in the Month of August, at Kalabagh ; Width 481 *yards ; Current* 5 *knots.*

West Bank : $4\frac{1}{7}$ $5\frac{1}{7}$ 7 7 $5\frac{1}{7}$ $5\frac{3}{4}$ $3\frac{1}{4}$ 3 $2\frac{1}{7}$ $1\frac{1}{4}$ $1\frac{1}{4}$ 1 1 1 $\frac{3}{4}$ $\frac{1}{7}$ fathoms.

FERRIES.

Kalabagh to Attock.

Pehie	1 boat.
Rookhun	1 „
Mukkud	3 „
Nurna	1 „
Khooshalgur	1 „
Shadeepoor	1 „
Nil-aub	1 „
Attock	38 „
Total.....	47 boats.

RIVER INDUS.

CHAPTER I.

OF THE CONSTRUCTION OF THE CHART OF THE RIVER INDUS.

The basis of the work is the position of Goree Baree, a port at the mouth of the Indus that, according to Lieutenant Carless' late survey of the Sindian Coast, lies in lat. 24° 13′ 20″ N., long. 67° 36′ E.

From Goree Baree upwards the stations used in the construction of the chart were fixed by means of their latitude and longitude. The latter was determined by two excellent chronometers made by McCabe; but as the reliance to be placed upon these instruments depends on the regularity of their going, I must refer for further particulars to Table No. I of the Appendix.

Wherever the Mission halted a sufficient number of days, I embraced the opportunity to examine the rates of the watches; and evidence of the attention paid to this particular subject will be found in Table No. II. of the Appendix, wherein is embodied the position of a few of the primary points employed in the formation of the chart, and which are numbered and retained in the accompanying copy.

Between Mithen and Attock the altitude of the sun would not admit of noon observation, and resort was therefore had to double altitude for determining the parallels of latitude.

The stations fixed by celestial observations were afterwards connected by protraction. There has been no attempt at a trigonometrical survey, and beyond having correctly traced the general course of the river, and astronomically determined the position of the towns upon its banks, I do not profess to have done more in the way of mapping than Lieutenants Burnes and DelHoste.

As I can add nothing to the topography of the banks of the Indus, south of its confluence with the Punjaub rivers, I have not considered it necessary to construct a map of that portion of its course which has

already been laid down by officers whose opportunities of observation were on this head at least equal to mine ;* I have, however, corrected the errors in the position of the principal towns, some of which, in longitude, were eighteen miles out, and when a more perfect knowledge of the Valley of the Indus shall call for an improved map of the river and surrounding countries, Table No. III.† will be useful in its construction.

From Mithen upwards the case is widely different. The upper course of the Indus had not been examined prior to the advance of the present Mission. Mr. Elphinstone had, indeed, crossed the river, but save an account of its channels at one particular spot (Kaheree) nothing was satisfactorily known of the rest of its course, so that, had my knowledge of the river been even more imperfect than it is, I should have considered myself bound to attempt its delineation. The errors of geographical position of the towns in this portion of its course were very considerable, but for their exact amount, I refer to Table No. IV. in the Appendix.

There is one subject which, though it makes no show upon the chart, I am anxious should be understood, and that is the navigable capabilities of the river. To this point my attention has been unremitted ; and the opinions promulgated in the accompanying Report are the result of much inquiry, and a careful examination of its channels. They may be less favourable than was expected, but it is something to know the actual state of a question that has already produced some controversy.

CHAPTER. II.

GENERAL VIEW OF THE RIVER INDUS.

This Report is confined to the navigable Indus, or that portion of the river lying between the sea and Attock.

Throughout the whole of this distance the river is known as the Sind. Sometimes it is called the Attock, but this latter designation is local in its application. I have retained both, and apportioned them as follows :—

The Lower Sind or Indus extends from the sea to Bukkur.

The Upper Sind or Indus from Bukkur to Kalabagh.

The Attock from Kalabagh to Attock.

By dividing the river into these sections, each is made to mark certain important alterations in the navigable character of the stream.

* Lieutenant DelHoste travelled on land from Hyderabad to Khyrpoor.

† See Appendix.

It may here be premised that of the course of the river north of Attock our knowledge is confessedly superficial. A few miles above that fortress the Indus ceases to be navigable, but not before it has received, in the Kabool river, a tributary that further extends the advantage of water carriage to the west, the most important of all directions.

Source.—To what Lieutenants Burnes and Macartney have written on the subject I have nothing to add: unless Moorcroft's Travels settle the question, the source of the Indus is still a problem to be solved.

In the plain above Attock the Indus is divided into many branches, but abreast of that fort they all unite. One deep, narrow, clear blue stream shoots rapidly past, and at once entering the hills, disappears from sight. Among hilly groups it winds to Kalabagh. At Mukkud the channel widens, and the expanded river flows quietly forward with a lessened velocity, and reduced depth. On escaping from its rocky bed, the river enters a level country, through which it winds onward to the sea. Its boundaries are now those of the valley: the Sooliman Mountains are on one side and the Indian Desert on the other.

Length of Course.—From the sea to Attock the distance

in a straight line is	648 miles.
By the river it is increased to.....	942 „

Breadth of the Stream.—The width of the surface water in the dry season varies from 480 to 1,600 yards; the usual width is about 680 yards.

Depth.—When the river is in full freshes twenty-four feet, but in an opposite season of the year nine, twelve, thirteen, and fifteen feet are the usual maxima of its soundings. The greatest depth of water in the Indus occurs between Kalabagh and Attock,—one hundred and eighty-six feet have been here sounded.

Velocity.—Seven knots an hour in the freshes, and three when the river is low. It is scarce necessary to remark that the three last items are very inconstant: at no two places are the measurements exactly alike; nor do they continue the same at one place for a single week. A more particular account of these will be found upon the sheets of the chart, and under the next head.

Fall per mile.—From Attock to Kalabagh ..... 20 inches.
Kalabagh to Mittun..... 8 „
Mittun to Sea* ..... 6 „

Discharge, per second:—

Maximum (in August).....	446,080	cubic feet.
Maximum (in December)	40,857	„
Annual discharge.....	5,383,600,934,400	„

Or 150,212,079,642 tons avoirdupois.

* The fall of the river from Mittun to the sea is from Captain Burnes' Memoir of the Indus.

Power of Transport.—Rolled pebbles do not occur in the bed of the Indus below Chandia-ke-Kote, a village five miles south of Kalabagh. Above Kote, though not below it, the sand of the Indus is searched for gold. This precious ore is also found at Dhera Ismael Khan, but not in the river; it is washed down by the rains from the Sooliman Mountains. Pebbles also occur at a certain spot in the river below Hyderabad in Lower Sind, but they can be traced to hills in the neighbourhood.

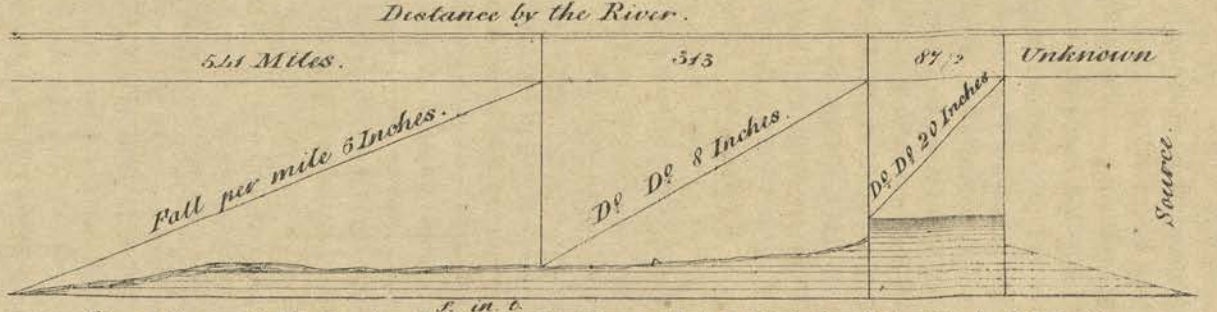
Height of the River's Banks.—Assuming, for the purpose of explanation, that the source and the embouchure of the Indus are upon the same level, the river in its long course may be said to have two maxima of rise: these are shown in the annexed sketch, where the measurements are those of the stream when in full flood.

The rise between Kalabagh and Attock cannot be called natural. It is caused by the contracted bed into which the stream is here thrown among the mountains. The rise at Hyderabad is the result of a carefully kept daily register, but at the other places this item has been deduced from an examination of the river's banks, and the best information I could procure.

Colour and Temperature.—To Dhera Ismael Khan the water of the Indus is of a lead colour; below that town it becomes of a dirty whitish yellow, tinged with red. In the freshes the red tint is heightened, but the general colour continues the same. Between Attock and Mittun all the streamlets that fall into the Indus are of a bright red, save the Hurroo and Töe, which have pebbly beds, and clear water.

Temperature of the River Indus.

Months.	Air.	River.	Remarks.
February	69°2	64°2	
March	90.0	78.0	
April	97.0	81.0	
May	100.0	84.0	Noon observations in the parallel of 24° N.
June	101.0	87.0	
July	95.5	88.0	
August	95.7	88.0	
September	94.5	86.0	



Sea Rise at Hydrabad f. in. t. 15. 2. 8 Mithun 8½ feet Kalabagh & Attock 48 feet

CHAPTER III.

NAVIGABLE CHARACTER OF THE RIVER INDUS.

Between the sea and Attock the facilities for navigation are not everywhere equally great; they vary with the state of the river's bed. As an acquaintance with the one may contribute to a knowledge of the other, I shall apportion the river into sections, corresponding to its capabilities, and after indicating the character of each division, append a figure explanatory of the present method of navigating the stream.

The *Delta*, as high as the influence of the tide extends.—There will always be an ample depth of water for even vessels of a greater draft than those elsewhere described as the best and only boats suited to the river under all circumstances. It reaches to Nooroo Kanand, a village on the left bank of the river, below Tatta; but above this navigation is intricate, nor does it materially improve till beyond the Delta. This is owing to the great expansion of the river's bed, where, among the numerous channels that present themselves, it is not always an easy matter to select the right one: no great inconvenience is felt on this score by the vessels now upon the river, for whether they ascend it laden or in ballast, dragged by the track-rope or propelled by the breeze, their progress is so slow that they may be said to feel every inch of the way.*

From the *Delta* to *Sehwan*.—This is the best portion of the river, and the Pulla fisherman, as he floats down the centre of the stream, proclaims this fact. The pole, to the lower extremity of which his net is fastened, measures from sixteen to twenty-two feet, and according as this may be in March or in August, either eight or fifteen feet of its entire length is immersed in the water. Two rocky ledges occur in this section: both project from the right bank of the river, and are found, one under the village of Jerkhs, and the other at the north end of the Hilaya reach; both are under water in the swell.

Sehwan to *Roree* or *Bukkur*.—As the character of the last section was determined by the avocations of the fisherman, so may be that of this one. The fishing pole is no longer in general use; but, among the shallows in the middle of the stream, men armed with creels, shaped like inverted cones, may be seen busy at work ensnaring the Pulla fish. Here, then, it may be presumed the depths are too irregular for the employment of the former method. Such is the cause, and thus does the practice of the fisheries upon the river become an index to the state of its navigation.

Bukkur to *Mittun*.—A great change here takes place in the character

* See Appendix, Table No. V., for the soundings of this and other sectional divisions.

of the river. The stream at Roree, though it may at some places be found in a single bed, is more often divided into two or more parallel branches, from 400 yards to four miles apart; where the former is the case (at Mithenkote, and for some distance below it, for example) the channels are more mazy and intricate than where its volume, as in the latter instance, is apportioned among a number of branches. These changes in the configuration of the river are met by corresponding alterations in the build of the boats. A new description of vessel, called a Zohruk, of a less draft than the Doondee, is now the common cargo boat: where the other is retained its size is reduced. Doondees, it will be hereafter shown, requiring five feet and half an inch water to float in, are in use upon the river below Bukkur, but above that fort I have not met a single boat of a draft exceeding three feet nine inches.

Mittun to *Kalabagh.*—The Indus in this section, as high as Dhera Ismael Khan, is equally well suited to navigation, though not better than that last described; it also in some degree resembles that section in its parallel branches, and broad bed. Between Dhera Ismael Khan and Kalabagh the difficulties of the navigation increase.

Kalabagh to *Attock.*—The downward voyage may be made throughout the year, but from April to October the passage is hazardous, and rarely attempted. Boats at all seasons may ascend as high as Sharkee, a village on the right bank of the river, a few miles above Mukkud; but between that and Attock the upward navigation of the Indus is restricted to the winter months, and even then a boat must have a double crew; and be of a build that does not obtain below Kalabagh, called a Dugga. For a description of this vessel see Chapter VII. of this Report.

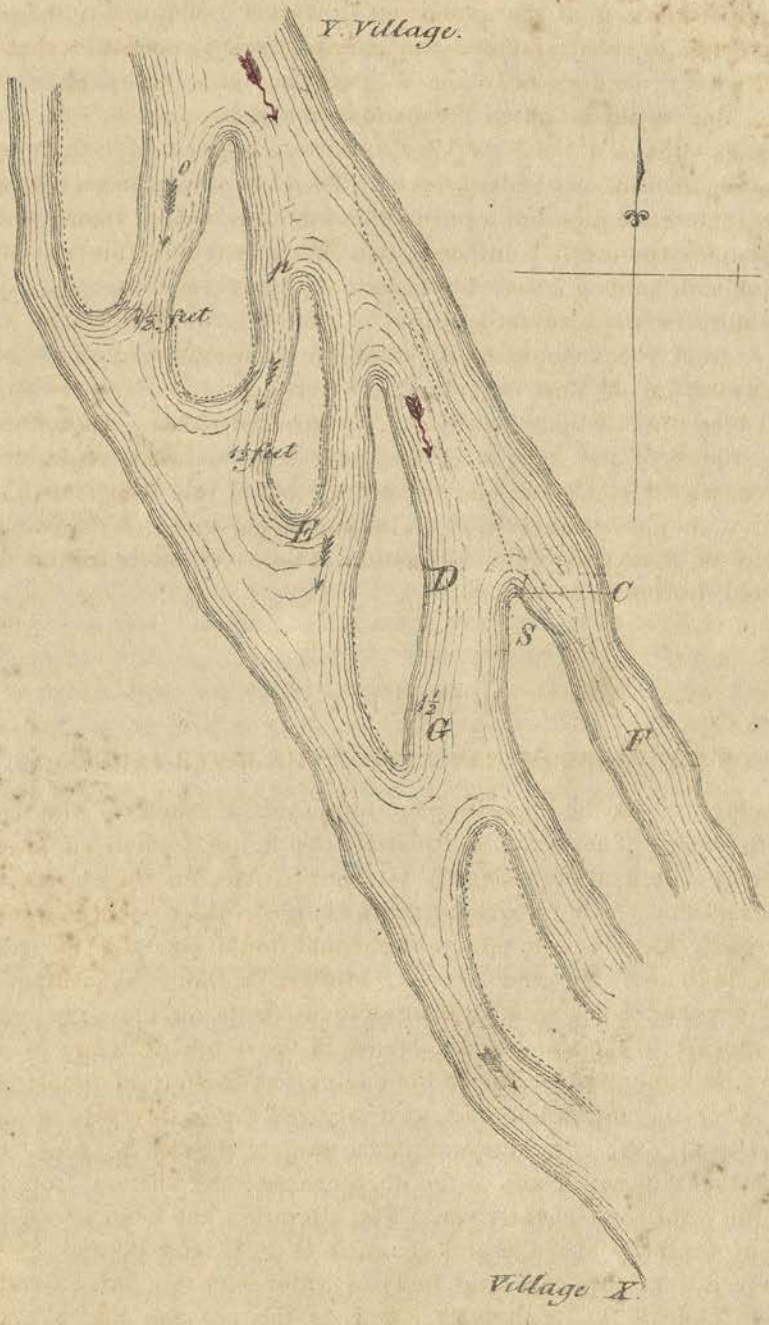
CHAPTER IV.

OF THE SOUNDINGS IN INDIAN RIVERS.

After having sketched the greatest navigable capabilities of the Indus from the draft of its boats, it will not be necessary to enlarge in this place on the nature of the soundings. South of Mithenkote, I have inserted, under sectioned heads, specimens enough to show the character of the channels,* and from Mittun upwards, the accompanying† chart must be referred to: a table marked maximum, minimum, &c. is quite the thing for a thermometrical register; but such a formula for soundings, when applied to an Indian river, mars its own object, unless, indeed, it be based upon the accumulated experience of years. That I do not therefore crowd these pages with figures is from a firm

* See Appendix, Table No. V. † At page 542.

Sketch of a Reach below Sehwun.



conviction of their inutility. They are, in fact, positively injurious ; for when a practical man at a distance casts his eyes over the contents of a table purporting to give the soundings in a river's channel, and finds the least depth to be two fathoms, he very naturally concludes that a boat constructed to draw only nine feet will navigate the said river. No conclusion could be more erroneous : the reasoning is suited to the equable streams of the New World, but not applicable to the ever-changing channels of our Indian rivers. To what other causes can we attribute that crude digest of a prospectus for introducing steam upon the Indus for commercial purposes, that lately reached this country from England, authenticated by names of the very first rank and respectability in the mercantile world ? One of the articles in the proposed Joint Stock Company provided for stationing a ship of one thousand tons (an old East Indiaman) as a depôt inside the river :—such a vessel could hardly come in sight of the Sindian Coast. Lieutenant Carless' survey of the mouths of the river has made us acquainted with their actual condition, and in another part of this Report I have stated what should be the draft of Indus steamers,* and this decision is the result of a most careful examination of the river, both in the dry season and during its freshes.

CHAPTER V.

OF THE MODE OF NAVIGATING THE RIVER INDUS.

The diagram on the opposite page represents a reach of the river below Sehwan. The better to illustrate the figure I shall suppose a boat deeply laden at the village Y is about to start on the downward voyage ; and that her Meerbar, or man in charge of the boat, is a stranger to the river. Leaving the village, he would doubtless take the large channel, indicated by the waved arrows, without regarding, if indeed they had been seen, the numerous offsets on the right hand. When abreast of the shoal S, a decrease in the depth of water would for the first time apprise him of his having lost the fair channel ; and shortly after this intimation had been received the boat would ground on the bar G. Now by inspecting the sketch it will be seen, that between the villages X and Y the deep channel has shifted from the left to the right bank of the river. The alteration has been effected by the silent drainage of the lateral channels O, P, E, and D, and by the unperceived departure of a large body of water over the bar, extending from S to C, into the backwater. F, E is the passage that the boat

* See Chapter VIII. of this Report.

should have pursued; but this knowledge could only have been the result of a previous careful examination, appearances at starting being decidedly in favour of channel D. The nature of these changes will be rendered still more evident by inspecting a section of the river's bed. Take for example the following :—

1st Channel. 2nd Channel.

3 4 4¼ 4¼ 3½ 2½ 2 ¾ ¾ ¾ ½ ¾ ¾ ¾ 1 1 1 1½ 1½ 2 2½ 2½ 2¾

3rd Channel.

1 1 1 1 ¾ ½ ¾ ¾ ½ ¾ 1 1¼ 1½ 1½ 2 2 1 ½ fathoms.

Such a line of soundings is not uncommon, though this one differs from the usual section in having an additional channel, two being the more usual number. The junction of these is not effected at a particular spot, but is, on the contrary, the result of a favourable course of many miles, during the whole of which distance the change is gradually being effected. They thus imperceptibly glide into each other, and should the channel selected by a boat descending the river be that which the stream is in the act of abandoning, she must be moved into the new formed channel as soon as a decrease of soundings gives warning of the fact. Now it is deserving of remark, that when the necessity of change first becomes apparent, there is seldom more than three quarters of a fathom of water on the spot separating the channels. Whether alterations in the channels of other large rivers are brought about in a similar manner, I am not aware; but this peculiarity, if it can be so termed, is familiar to the boatmen upon the Indus, and with a description of their manner of meeting it, and the precautionary measures to which it gives rise, I would conclude this notice of its navigation.

No vessel with cargo on board makes a downward voyage unaided by a pilot boat: it is called here Sooee, or guide. These are small cheap skiffs, managed by a couple of men, one of whom, standing on a platform in the bows, gives the depth of water, while the other with his scull over the stern steers the boat. Cheap as the services of a pilot may be had, the protracted length of the voyage makes it a burden too weighty for a single cargo to bear, and the custom therefore is for boats to drop down the river in fleets or by divisions, when Sooes become so multiplied that to every two or three large boats a tender is attached. Grain being the only freight, all shipments are made at stated seasons of the year, and as the quantity of corn produced on the banks of the Indus in autumn far exceeds that cut down in spring, the winter fleet outnumbers in an equal proportion that which takes its departure about midsummer. In February 1837, when the river was at its lowest level, I counted forty-two grain-laden boats pass Sehwan, on their way to Hyderabad, whither the surplus produce of the upper provinces is yearly

exported. The largest of these boats drew five feet and half an inch of water, and the manner of conducting the fleet was as follows :—When the day's stage had been fixed, a detachment of Sooes went ahead to sound, into each boat there being, besides her own small complement, two or more of the doondee men. If the channel is clear, the extra portion of the pilot boats' crew hasten to rejoin their vessels by land. On their arrival, all is bustle and noise in the fleet: the fastenings of the boats are cast off; the oars are plied, and the huge hulk, preceded by her guide, sheers out into the stream. If the Meerbars have confidence in the channels, and the wind be fair, a large square sail is set, and the unwieldy doondee, deep though she be, outstrips her tender, and seems to skim the surface of the water. Such a fleet in motion is worth seeing: first the large white sail of the headmost boat is discovered at the top of the reach; then another and another drop through, till the surface of the river becomes studded with these uncouth, yet really interesting objects. As may be supposed, this mode of navigation is tedious, the daily stages not averaging more than from ten to twenty miles; delays, too, are not unfrequent in the dry season, but never exceed fifteen days, and rarely extend to half that number. When there is a prospect of a long detention, it is customary for large boats to transfer a portion of their cargo into smaller ones, and take it on board again when the shoal water is past. In high winds, the boats remain fast by the bank of the river. The two following tables are inserted in illustration of the above remarks :—

Tables showing the Cargo Draft of the largest Boats upon the Indus, with the least Water in the continuous Channel during the Dry Season of 1837.

DRAFT OF BOATS.

Class of Boats.	C. Draft.		Gunwales above Water line.
	Feet.	ins.	
1st Class...	5	0½	10 inches.
2nd do. ..	4	9	9 ditto.
3rd do. ..	4	3	9 ditto.
4th do. ..	3	3	7 ditto.
5th do. ..	3	0	5½ ditto.

CHANNEL.

Places.	Depth.	
	Feet.	ins.
Gooloo.....	3	8
Lillong.....	4	4
Mye Otta.....	4	8
Beelalpoor.....	4	1
Kaira.....	4	8

The places in the above table are all situated between Sehwan and Roree, but they furnish a good example of the depth in other sections.

Boats descending in the freshes proceed as above described. In this season the length of the voyage is much shortened, though attended with considerably more risk: a pilot is still required; but a previous examination of the channels is not always considered necessary. The following table gives a statement of the downward voyage at opposite

seasons of the year: it embraces the whole navigable extent of the river, and includes pilotage, where such a custom prevails. The voyages are such as are rarely performed by Sind boats even when the river is clear, and other circumstances favourable:—

The Downward Voyage.

Stages.	DrySeason.	Freshes.	Pilotage.
Attock to Kalabagh	1½ day.	1 day.	Rs.
Kalabagh to Dhera Ismael Khan	7 days.	2 days.	6
Dhera Ismael Khan to Dhera Ghazee Khan	10 do.	3½ do.	6
Dhera Ghazee Khan to Mittun	4 do.	2 do.	3
Mittun to Roree	6 do.	3½ do.	About 18
Roree to Sehwan	7 do.	4 do.	About 16
Sehwan to Hyderabad	3 do.	2 do.	About 12
Hyderabad to Sea	2½ do.	2 do.	About 12
Total	41 days.	20 days.	

The upward voyage is performed by the aid of the wind and track-rope. This last mode of procedure is slow, but certain, and averages about eight kos or thirteen miles a day: with a strong favourable breeze the daily progress is increased to twelve and eighteen kos. The prevailing winds during the year, and their consequent influence on the navigation of the river, are given under the next head; and it will there be seen that the freshes, far from presenting any obstacle to the upward voyage, are more favourable to it than otherwise. During their continuance a south wind blows from the sea to Kalabagh, and though less steady upon the Upper Indus than in the lower part of the river, it is a great service to navigation, since the time consumed by an up-river voyage in the dry season may be stated as one-half in excess of that required to perform it in the swell. Subjoined is a table showing the relative time occupied by the voyage at opposite seasons of the year:—

The Upward Voyage.

Stages.	Dry Season.	Freshes.
Seaport to Hyderabad	15 days.	7 days.
Hyderabad to Sehwan	8 do.	4 do.
Sehwan to Roree	14 do.	7 do.
Roree to Mittun	14 do.	6½ do.
Mittun to Dhera Ghazee Khan	10 do.	4 do.
Dhera Ghazee Khan to Dhera Ismael Khan	19 do.	10 do.
Dhera Ismael Khan to Kalabagh	12 do.	7 do.
Kalabagh to Attock	15 do.	Impracticable.
Total	107 days.	45½ days.

Of the foregoing tables it may be remarked, that under a different management, the number of days occupied in performing the voyages, especially up river in the dry season, will be much reduced: at present, *time* is no object to the Sindian, and besides, he loads his boat so deep that the ripple caused by only a moderate breeze endangers her safety.

CHAPTER VI.

OF THE WINDS AND WEATHER IN THE VALLEY OF THE INDUS.

The prevailing winds upon the Indus conform to the direction of the river, blowing for six months up the stream, and as many down it. From April to September the breeze is southerly, and during the other months of the year it comes from the north; an east wind of twelve hours' continuance is rarely felt. When a change in the prevailing direction takes place, the wind veers by the west. From 10 P. M. to noon of the following day, the wind is usually fresh; the afternoon and evening are often oppressive, for want of the usual breeze: this last remark is, however, more especially applicable to the weather on the Upper Indus. In Lower Sind it is often just the reverse, the breeze there freshening up about 3 P. M. However warm the day may have been, the nights, with few exceptions, are cool. A more particular account of the prevailing winds will be found in the annexed table:—

Prevailing Winds.

Months.	North.	South.	Calm and Variable.
			Days.
January	29	2	...
February	22	6	...
March	17	13	...
April	7	15	8
May	1	29	1
June	...	28	2
July	...	28	3
August	...	27	4
September	6	24	...
October	...	...	...
November	...	...	...
December	...	...	...

The South Wind.—It reaches Kalabagh, at the entrance of the mountains, and last year was as fresh and steady upon the Upper as on the Lower Indus. This wind is believed by the boatmen of the latter to cease at Sehwan, and in my Report on the Inundation of 1836, I

mentioned the circumstance. Such however, is not exactly the case. South of Schwan a spur from the Hala Mountains comes down upon the Indus, which interrupts the breeze, and turns it off from the river, so that above the town for many miles, calms and sultry weather are characteristic of a season remarkable at other places for the steadiness of the prevailing wind. Yet, though this peculiarity is thus shown to be local, another circumstance leads me to think (contrary to my own experience) that the south wind is less fresh upon the Upper Indus than lower down the river. Above Roree the boats have but a single reef-band in their sails, while at Hyderabad it is no uncommon sight to see them scudding before the breeze with their sails double, and even triple-reefed.

The North Wind is not so steady as the south, but is oftener more violent while it lasts: clouds of sand darken the air, and compel the trackers to bring their boat to the bank. This wind is cold;—in November, December, January, and February, the thermometer at sunrise is often but a few degrees above the freezing-point. During the season that northerly winds prevail, gales from the south are not unfrequent: these are always scarce, and usually last three days. The change is marked by cloudy, rainy weather, lightning, and thunder.

Variable Winds.—During those sultry breezes that follow the daily lulling of the prevailing wind, the calm is often agreeably broken by light breezes off the river. These are seldom sufficiently strong or lasting to benefit navigation, but in tempering the heat of the atmosphere, and conducing to the health of the numerous tribes that dwell on the banks of this river, they serve an important purpose.

Storms.—Plenty of warning is always given, and ample time afforded to secure the boat, which should be either done under the weather bank of the river, or the lee side of an island or sandbank: an unsheltered position in deep water, with the open river to windward, generally settles the fate of an Indus boat. If loaded, she at once fills and goes down; and if empty, the shaking produced by a short chopping sea soon opens the seams of a vessel that has no beams to hold her frame together. In a river, danger from this cause may appear slight; but when the stream and wind are opposed to each other, a short breaking sea is formed, that will swamp a six-oared cutter at a grappling. Most of the boats lost in the Indus are wrecked in the manner here described. Gales of wind are experienced throughout the whole line of the Indus; they are more frequent near the mountains than in the neighbourhood of the sea.

CHAPTER VII.

OF THE BOATS UPON THE RIVER INDUS.

The boats upon the Indus are of simple construction, and their figure is, perhaps, the best that could be given, considering the kind of navigation in which they are employed. They are easily constructed, not very expensive, and for stowage of cargo no form could be better devised. Their proportions, though not elegant, are pleasing; and tracking or under sail, their appearance is pretty. The employment of the Indus craft is confined to harvesting the crops, serving the ferries, and keeping large towns in fuel; for these purposes the supply is ample.

Between the sea and Attock two kinds of vessels are in use,—the *Zohruk* on the Upper, and the *Doondee* upon the Lower Indus. In boats belonging to the latter class, a slight difference in the build gives rise to a further classification, and of this description of vessel the Mohana (boatman) enumerates more than one variety; but before particularizing each, a description of the Doondee is necessary. Her good and bad qualities are shared alike by them all, and the following notice of this boat is, therefore, applicable to every vessel upon the river:—

Form, and Method of Construction.

The hull, or body of the boat, is formed by the junction of three detached pieces, namely two sides and a bottom,—at variance with our ideas of naval architecture: the three parts are first separately completed, and then brought together, as a cabinet-maker does the sides of a box. The junction is thus effected: when each of the three parts that are to form the whole is complete in itself, the sides are carried to the bottom of the boat, and at once secured, by crooked pieces of timber, to the flat future bottom of the doondee. To bring the bow and stern up to the corresponding parts of the sides is more difficult, and to effect this many days are necessary. Where the bow and the stern are to rise, the planks are lubricated with a certain composition, which gives them a tendency to curve upwards, and this is further increased by the application of force. The extremes thus risen, a tackle is stretched between them, and by a constant application of the heating mixture, and a daily pull upon the purchase, they rise to the required angle, and are secured to the side, while an advantageous curve is imparted by this process to the planks in the boat's bottom. The bow of the doondee is a broad inclined plane, making an angle of about 20° with the surface of the water. The stern is of the same figure, but subtends double the angle.

To the slight curve in her bottom planks she is indebted for the following advantages: in descending a river, should she strike upon a sandbank, the boat turns like a top, and presents no stationary point for the stream to act against. A merely flat-bottomed vessel would probably show her broadside, and the stronger the current was running, the greater would be the difficulty in getting such a boat again into deep water. Thus, in a situation where the doondee experiences but a little inconvenience, and occasionally, it may be, a few hours' detention, a boat of another and but slightly altered form would be very awkwardly placed, though her safety might not be actually endangered.

In passing through eddies, the common or wedged-shaped bow dips considerably, while the form of the doondee's prow has a tendency to lighten her draft; and the more rapid the current, or the greater her velocity, the more buoyant she floats.

When forced end on against the river's bank,—an accident which the defective steerage of the doondee renders of frequent occurrence in tracking,—the form of her bow, where the bank is not too high, parries the violence of the shock.

A greater defect in the common wedged-shaped bow for river navigation (at least in those of the Indus, where the current is very irregular) is the surface it presents for currents or cross currents to act against: these force the boat from her course, and deprive the helm of its power. In tracking this is often seen, and I can remember rather a ludicrous instance which occurred to the *Indus* steamer, whilst coming up the river to Hyderabad, in 1835. The day to which I allude, it was necessary to second the power of the engine by a tracking party on shore, and a number of Hindoo countrymen were employed for this purpose. All went well till the bow of the boat got inclined to the direction of the current, when out she shot like an arrow into the stream, and with her dragged the trackers. Casting off the drag-rope prevented accident, but the situation in which it left the Hindoos was not a little grotesque: between the firm ground and the river lay a strip of recently placed alluvium, and in this the Sindees were planted, at various depths from the middle downwards.

The present great defect in the form of the doondee is bad steerage: by rounding her quarter, and making other judicious alterations, this could be improved. To fit them for conveying merchandize, they require to be stronger built, and for the convenience of the merchant to have better accommodation,—in fact, to be restored to the state in which an early traveller, Captain Hamilton, describes them, when trade flourished by the Indus, and its arrangements were such as to attract the notice of an intelligent European.

Rig of the Boats.

The masts are poised upon strong beams resting athwart the gunwales: moving on this fulcrum, their management is easy, and the masts can be lowered down or placed upright at pleasure. The sail is hoisted behind, in preference to before the mast, for several reasons; the principal of which is, that as the boat sails only with a favourable wind, it is never necessary to brace or haul upon the yard, and fewer hands suffice to manage the boat.

The *Jumptee* is the State barge of the Sind Ameers, and is used by them and their principal officers on all occasions, whether of business or pleasure. Perhaps the appearance of this boat, as she approches the capital, is more characteristic of the Indus and of Sind than aught else to be seen in the country. On this day her Meerbar puts on clean clothes, and the national cap, received from the Ameers in a recent river excursion: the bright hues of the cap, formed of the gaudiest coloured chintz, vie with those of a Kilmarnock bonnet, or a Paisley tartan. The crew are dressed becoming the occasion, and as they bend to the track-rope, the breeze distends their ample robes, and a further character of stateliness is imparted to the jumptee. Large red flags wave over her stern, and from the raking masts streams a long party-coloured pennant, that anon skims the water as the breeze lulls and freshens. In the bow of the boat is a small crimson pavillion, in which royalty reclines, and in the other extreme of the vessel a roomy cabin of elaborately carved work for its numerous attendants. The steersman, on an elevated platform, stands out in bold relief, and, while he guides the boat, encourages the trackers. The jumptee's crew are a noisy set, but, for aged men, wonderfully good-humoured: they are divided into two gangs, or watches, and are as partial to a cup of good-bang as sailors are to grog. These boats are decked, and of considerable tonnage. One, which I saw at Hyderabad, measured 120 feet over all, with a beam of eighteen and a half feet; her draft of water was two feet six inches; she pulled six oars, and had a crew of thirty men. They are built of Malabar teak, chiefly at the ports of Mughribee and Kurachee. Jumptees are seldom lost; the only danger to which they are liable is that of having their bottom pierced by sunken trees. Their more substantial build keeps the frame of the boat together in situations where the poor pieced-shell of a doondee would fall asunder.

The *Doondee* is the cargo-boat of Sind, her principal and almost her sole employment being the transport of grain.

The *Cowtell*.—This, again, is the ferry-boat of Sind: her construction adapts her for this service, and for conveying horses up and down the river. From her great beam and high draft of water she is a faster boat than

the doondee. In all their excursions on the river, the Ameers are accompanied by many boats of this description. The class is not numerous, and most of the boats are the property of Government.

The *Doonda* is common from the sea to Mittun, and the boat most generally used in the fisheries both upon the river and its dunds (small lakes). It is the smallest description of vessel upon the Indus, and at the sametime one of the most useful. Two men are ample to its management, but a man and wife are the usual crew.

The *Zohruk*.—What the doondee is in Sind the Zohruk is upon the Upper Indus, namely the common cargo-boat of the country. The planks of this vessel are held together by clamps instead of nails, and the junction is often neatly enough executed. This class of boats is not so strong as the doondee, but they sail faster, and draw less water. They are more roomy than the doondee, and, though less adapted for the conveyance of goods, are much superior for transporting troops.

The *Dugga*.—This is the clumsiest, and at the same time the strongest built boat upon the Indus. She is confined to that rocky and dangerous part of its course lying between Kalabagh and Attock. The form of the boat differs but slightly from that of the doondee; the dugga has neither mast nor sail. Her name is the Sindian word for a cow, and the awkward, sluggish motion of this boat shows that it has not been misapplied. If the dugga drops down the river to Mittun, there she must remain, and be sold for whatever sum she will bring, for to drag her up against the stream to Kalabagh would cost more money in the hire of men than the boat is worth.

Management of the Boats.

Under sail the very best of them will not lie within eight or nine points of the wind.

Dropping down the river with a contrary wind, the mast is struck, the rudder is unshipped, and replaced by two sculls; should the wind blow strong, a boat without cargo can make no progress, and the safety of one laden is endangered by the chopping sea it raises.

Tracking is performed as follows:—The boat is provided with a track-rope at least a hundred fathoms long. This is rove through the uppermost sheave-hole at the mast head, and the inner end fastened to the rail or platform on which the steersman is standing. On the hauling post, before the mast, is a guy called a Lagh, the lower end of which passes through a ring-bolt in the bow of the boat; this guy is of as much utility as the helm itself. Before the boat starts, the track-rope is middled, and the inner half coiled down under the feet of the steersman. One man is stationed by the guy, and the remainder of the crew toggle on to the shore part of the line. Thus yoked, they march at the rate of

two miles an hour, up to the knees, often higher, in water or in mud. Whilst thus advancing, the foremost tracker calls out "Shoal water"; on which the inner end of the clog-rope is let go, the guy eased off, the helm put on one side or the other, as the case may be, and the boat, thus relieved, avoids taking the ground, by shooting out into the stream. The shoal past, the guy is shortened, the line again middled, and the crew advance at the same slow pace as before. Boats should have two track-ropes, and when turning the bends of the reaches both should be on shore. They should also be provided with a heavy grapnel, to drop in the event of accident to the track-rope. The steep bank in bends of the river should be avoided, for under it circles a current in a contrary direction to that of the main stream, the quick gyratory motion of which is constantly exerted to the destruction of the bank, and that of such boats as frequent it.*

Boat-building Materials.—Suggestions.

Boats are constructed according to established usage, which has fixed a certain proportion between the beam and length of each boat. The tonnage is calculated on the boat's bottom from the point where the stem and stern rise,—the angle at which it takes place is matter of taste: a high projecting stern improves the steerage, and a low bow gives speed. The banks of the Indus are deficient in almost every article used in constructing the boats on the river: Lower Sind is supplied with plank and spars from the Malabar Coast, and with coir and cordage from the same quarter. The Ameers of Hyderabad are, however, the chief, almost the sole purchasers. The Mohana, unable to give the high price asked by Kutch boatmen for teak plank, exhibit both skill and ingenuity in building boats with timber of their own country's growth. For this the orchard is robbed, and the country for miles round laid under contribution. In the bottom of a single boat, teak, baire, fir, babool, and the kureel tree are sometimes seen together, and in the same extent of workmanship six hundred and seventy-three patches have been counted. The *Upper Indus* is principally supplied from the banks of the Chenab, where the Talee tree, the Sissoo of Hindustan, is seen, with a trunk measuring twelve feet in circumference: three such trees furnish plank enough to build a large sized zohruk.

The Attock boats are built of good fir, brought down the Kabool river, and from the forest of the lower Himalaya.

Ironwork.—The Lower Indus is supplied from Bombay, and the upper portion of the river from the mines of Bunoo and Badjour. It is

* See an example of this in Table No. VI. of the Appendix, headed "Irregularities in the Bed of the Indus."

customary to purchase the latter in the matrix, and to allow a per-centage to the blacksmith who smelts the ore, and works it up into nails.

Cordage.—Upon the Upper Indus the rope is either of hemp, or formed from the culm of certain tall reedy grasses, very plentiful on the banks of this river.

The tools of the Sind carpenter are as little diversified in form as those used by the same class of artificers in India. The absence of good material to work upon sharpens his inventive powers, and gives a manual dexterity that improves the execution of whatever he may have to do when really good timber comes before him. If a curve is to be imparted to one, or a dozen planks united, chaff moistened with water is the Sindee carpenter's stove, or, what answers the purpose even still better, the dung of animals, and more especially that of sheep.

Teak-built boats are much prized by the Mohana, as are those of cedar and fir construction, which come from Pind Dadun Khan, on the Jhelum. Such boats, when well put together, will run forty years, but from seven to ten is the duration of those patched up with the jungle wood of the country; and if care has not been used to see that the wood employed in her construction was originally well seasoned and selected, a less number of years brings on the decrepitude of age, when to delay a thorough repair is to lose the boat.

Adaptation of the Indus Boats for the transport of Military Stores.—They are not calculated to bear the weight of ordnance, such as a battering train; and at the present moment there is not a boat upon the river which a committee would declare efficient for the transport of these heavy guns. For this purpose, the boat should have a perfectly flat bottom, that the weight of metal may be equally distributed over the immersed portion of the hull. The sides, too, require to be fixed to the bottom in a more secure manner than is at present customary. The knees which connect them should be formed of iron in preference to wood. If shot is to be carried, the bottom of the boat should be planked over the beams, as well as under them: the latter is all that is done at present; but if this is not guarded against, the nails will draw, and the shot fall through.

Should it become desirable to increase the amount of tonnage upon the Indus, boats could be built at Bombay, Hyderabad in Sind, or Pind Dadun Khan in the Punjaub: if at the former place, it would be advisable there only to prepare the frame, but to build the boat, that is put her together, in the river. Good artificers are to be had in the country, but the introduction of a few superior workmen from the Dockyard, with a clever Native foreman or overseer, would be necessary. A smith is an indispensable accompaniment, and when steamers are introduced, this establishment should, to be efficient, be possessed of science,

material, and skill; if Hyderabad were to be selected for building boats, still all the material must come from Bombay; if Pind Dadun Khan had the preference, a small supply of cedar plank might be there calculated upon, and the services of better workmen than are to be procured in Sind.

Boat-hire.—In this charge there is some incongruity, yet it does not appear to exceed the rate of hire that prevails upon the Ganges.*

CHAPTER VIII.

OF STEAM VESSELS FOR THE INDUS.

Naturally solicitous to be acquainted with the present state of internal steam navigation upon the Ganges, ere presenting Government with the result of my experience on this river, I addressed a letter, forwarding a list of queries on the subject, to Mr. C. B. Greenlaw, of Calcutta, and through the kindness of that gentleman I have been favoured with the accompanying valuable report from the pen of Captain Johnstone, Controller of Government Steam-vessels, an officer more conversant with these matters than any man in India. In submitting this document to His Lordship the Governor General in Council, I will only remark, that in every essential point the class of vessels described by Captain Johnstone seems well suited to the Indus, and the economy that pervades the steam establishment upon the Ganges worthy of imitation here.

Towards the close of the year 1835, when the *Indus* steamer arrived off Hyderabad, one of the Sind Ameers expressed a wish to be possessed of a similar, but a more powerful vessel. Captain Burnes, who was then at that Court, requested my opinion on the description of vessel best suited to the Indus; and from the reply to his communication the following paragraph is an extract, from which it will be observed, that I had then fixed for the draft of an Indus steamer the exact number of inches which boats upon the Ganges draw:—

"Para. 11. In a preceding paragraph I stated powerful vessels were required upon the Indus; the reason is this: in some parts of the stream the current has a velocity of five and six knots an hour.† It will therefore be wise to possess a sufficient power, since steam is now so under control that in the downward vogage, where accidents are more liable to occur, it can be reduced at pleasure. But if the engines

* See Appendix, Tables Nos. VII. VIII. and IX., for the tonnage, price, and hire of Indus boats.

† I had not, when this was written, seen the Indus during its freshes.

be originally too weak, a new boat is a costly remedy. Two feet six inches is a good draft of water, and ought not to be exceeded. The boat to have great beam, not much length, and no keel."

Remarks on the Steamboats of the Ganges, furnished by their Controller, Captain JOHNSTONE, *R. N.*

"Four iron steamboats are now employed in inland communication. Each steamboat is 125 feet long over all, 22 feet broad, and tows an accommodation boat of the same length, and 20 feet broad, with a hold of 4 feet deep, capable of stowing 4,000 feet of cargo, weighing 40 tons; the boat draft, when so loaded, not exceeding *thirty inches*. The iron sides of the boat are five feet deep; above that is a light superstructure of wood in the accommodation boat between the deck which forms the hold, and the deck on which the crew and passengers walk; the height is nearly seven feet, and the included space from one end of the vessel to within twenty feet of the other or fore end is divided into cabins and dining rooms, and fourteen cabins are available to passengers, four of 12 feet by 9, four of 9 by 8½, and six of 8½ by 6¼; a dining room 20 by 12; two bathing rooms; two pantry or store-rooms, a butler's room, guard-room, and two cabins for officers. Each cabin has a water-closet; the windows or venetians are 4 feet deep by ⅔ wide. In the steamboat, the iron side is continued up in the centre to the height of the beams which carry the paddle-shafts, and the light paddle-boxes are of wood.

"The engines are double, of 60 horse-power, oscillating; they consume of Burdwan coal about 10 lbs. per horse-power per hour, and carry, at a draft of 30 inches, 450 maunds. In the steamer there is a large cabin abaft the boiler, not habitable by Europeans in the warm weather, but very comfortable in the cold; before the engines there are two cabins on each side 8 by 5 feet, with a space between, which forms a messroom; there is also a very light cabin on the deck, of ¾-inch board, 10 by 8 feet; the engines are before the boiler. The steamers have one mast and topmast, on which they hoist square sails when the wind is fair. The boat (a good stout cutter) is always towed close up to the stern of the accommodation boat. The anchors are of 5 and 3 cwt., besides stream and kedge anchors, grapnels, &c. They are well furnished with ground-tackle,—chain cables are alone used. The diameter of the paddle-wheel is 16 feet; the breadth 6 feet; the boards 6 feet long, 18 inches deep, and 18 in number on each wheel. They are prepared of fir, and are 2 inches thick. The centre board, when the vessel has her coal on board, is 3 inches below the water's surface. The greatest speed of the steamer when alone is nine statute miles per hour; with the accommodation boat in tow seven miles.

"The contractors have their coal in depôts on shore, and send it in boats to the steamers, where they cannot lay alongside the bank. The coal is taken by weight, and one hour allowed for the delivery of 100 maunds.

"In the bow of the accommodation boat, and at the stern of the steamer, are fixed strong posts, well secured, and at the same height a saddle is bolted on each, and protected by an iron plate; an iron hoop 6 inches deep is on the post; also above the saddle, in contact with it, a beam of 18 feet long, 14 broad, and 5 thick, with jaws at each end, connects the boats, by resting with its two ends on the saddles, and is secured round the posts with a chain secured with a hook and lever, so as, by letting go the end of the lever, to detach the chain in an instant, and allow the boats to separate. There are also hawsers from each bow of the accommodation boat to the paddle-boxes of the steamer, which serve to guide the boats, and assist the steering, the former boat acting as a powerful rudder to the preceding one.

"Progress is more easy and safe in the Ganges during the dry season. There is little danger at any time in ascending the stream, but much in coming down,—most during the dry season, when the channels are all defined; and the commanders are instructed to come with great caution, dropping through the difficult reaches with the heads of the boats up the stream: they are instructed to consider the preservation of the boats from accident the first consideration, speed a secondary one. In the dry season the voyage downwards frequently occupies sixteen or seventeen days; in the swell, five, six, seven, and ten: the upward voyage during the greatest strength of the current occupies from twenty-five to thirty days, at other times nineteen to twenty-three and twenty-five. In the swell the current of the Ganges is seven miles; in the dry season three. The boats in the swell can generally evade the strength of the current by running over or on the edges of sands; in the dry season they must generally encounter its full force.

"There is an establishment of pilots,—Native fishermen. The distances vary from eighteen to twenty-six miles through which they are required to be acquainted with the channels; nevertheless a boat seldom makes a voyage without grounding, and the principal injury the boats sustain is by coming in contact: under these circumstances, it is nearly confined to the superstructure. On one occasion only a pair of boats suffered under water, being thrown against rocks by a strong eddy when descending under steam: each boat had a hole forced through the engine-room. They were easily stopped, the injury being confined to the portion of metal in actual contact with the rock;—a wooden boat would have been shattered by the concussion.

" It would not be possible to construct wooden boats to retain their form at the light draft the iron boats do; and I can perceive no means of improving on the boats we have, limited, as by the nature of the rivers we are, to length and draft of water.

" I believe that for the Ganges above Allahabad it will be in my power to fix a steamboat not to draw more than 22 inches, with twenty-four hours' fuel. The economy of weight will be confined to the superstructure, the iron hull being the same in point of form and dimensions as those now plying, the metal a little higher."

There is one point in the above report where I conceive a different arrangement must be made upon the Indus to what prevails in the Ganges. Most of the fuel depôts upon the Indus for current consumption must be afloat; if wood firing is used there is no alternative, for otherwise the time lost in taking it on board will cancel all the other advantages of steam. The banks of the Ganges are high, substantial, and, compared to those of this river, permanent; towns overlook the river; Ghauts or landing-places are constructed on the banks, and the steamboat at most of the stations has only to shove alongside of the Ghaut and receive her fuel. It is very different with the Indus: towns stand within two miles of the river, and its banks are ever varying their outline. I would therefore recommend that large manageable flats be used for this purpose, and anchored at such distances apart as subsequent experience may suggest. Their draft should be restricted to three feet six inches, and each should have a small boat attached. By this means the crew of the flat will be able to keep the floating depôt well supplied from the shore store.

I am further of opinion that were the zohruk's defective steerage overcome, steamers built upon her model will prove efficient boats.

CHAPTER IX.

OF FUEL FOR STEAMBOATS.

The jungle on the banks of the Indus contains the following trees:—

1*st, Mangrove.*—Found only in the Delta; is plentiful, and burns well. Though it attains to no great height, it has sometimes a circumference of twelve feet.

2*nd, Kundie.*—Rarely exceeds nine feet in height, and is found, though not confined to the locality, under the Lukkee Mountains, between Chandkote and Sehwan. In Lower Sind this wood is scarce, but twelve miles south of Mittun, on the west bank of the river, is an extensive jungle, in which this is the most common tree. The hardness

of its fibres, and the crookedness of its grain, make it in great request among the boat-builders.

3*rd*, *Baun*.—Little of this wood is seen below Hyderabad, but between the Capital and Sehwan the tree is common. As a fuel it is useless.

4*th*, *Jall* or *Pelloo*.—This tree is found in every part of the river's course. Between the river and desert two descriptions of trees prevail: Tamarisk fringes the river, Jall or Pelloo the desert. The latter, as a fuel, is not superior to Baun.

5*th*, *Tamarisk*.—From the sea to Kalabagh this wood is more or less plentiful. Almost any quantity of it is procurable, but the large wood is distant from one to twelve miles from the Indus, and considerable expense and delay must necessarily be incurred in transporting it to the river. Tamarisk is the common firewood of these countries.

6*th*, *Kureel*.—It is plentiful in Sind, but makes an indifferent fuel: it gives out volumes of smoke, but emits no flame. This wood is generally crooked, and its fibre being hard, it is advantageously used for knees of boats, and wherever curved lines, strength, and durability are sought to be combined.

7*th*, *Loohera*.—Between Lake Munchur and the mountains grows a tree of this name, of a dwarfish size, and very common. As a fuel it is even worse than the last described.

8*th*, *Tallee*.—This tree is not common on the banks of the Indus, and the few that do occur are found near villages, in single trees. It attains a large size, and is much in request among the boat-builders. It burns well, but the tree is too valuable to be cut down solely for firewood.

9*th*, *Babool* or *Bubber*.—This tree is plentiful in Sind, but becomes less as we ascend the river. It makes an excellent fuel.

10*th*, *Shikargahs* or *Hunting Forests*.—They are numerous below Sehwan, but above that town they are not found. The trees they contain are mostly tamarisk and babool. These forests at some places fringe the river for three and four miles, but their medium width seldom exceeds one. In a few of them are trees of a large size, but far the greater number are merely extensive thickets, containing saplings of sorts, tall grass, and reeds, the spontaneous offspring of a rank, inundated soil.

* In December 1835 I made several experiments with the *Indus* steamer to ascertain the relative strength of wood and coal fuel; the result was as follows:—Tamarisk, when newly cut down, would not generate enough steam to keep the engine going, though working only on half-power. If the billets were large, and thoroughly dry, they answered the purpose better, though I consider this wood at best but an indifferent fuel. The mangrove, and the babool or bubber trees, are much

superior: burning equal proportions of the two last, the furnaces were replenished once in seven minutes; with coal (not however of a very good quality) every fifteen. Coal has thus an advantage over wood fuel in something more than the proportion of 2 to 1, and when the superior performance of machinery driven by the former is taken into account, it is doubtful which is the more economical plan,—to navigate the Indus by means of coal from England, or the jungle now growing upon its banks.* The question resolves itself simply into one of expense, for there is wood enough on the banks of the Indus to keep two or more steamers constantly plying for years to come.

On this subject Captain Johnstone, the Controller of Government Steam-vessels, has made sundry experiments with steamboats upon the Ganges. The result is already before Government; but having obtained, through the kindness of that officer, a copy of his report, the nature and value of its contents are my apology for introducing it here:—

"*Report, dated the 30th October 1837, on the relative Value of Wood and Coal, by Captain* Johnstone, *R. N., Controller of Government Steam-vessels.*

"On Friday, the 27th instant, I ordered the steam to be got up on board the *Experiment* flat, and ran for two hours on the ebb tide between Fort William and the reach below Budgebudge, and consumed 9½ maunds of coal, making on an average 29 revolutions. I then returned with a flood tide, and in two hours consumed 11¼ maunds of wood, making on an average 21 revolutions. I also noted the time we were running the same distances under coal and wood steam; the periods were 90 minutes with coal, and 112 with wood. Great care and persevering attention were required in the stocking with wood to keep the steam up, and twice the engines were nearly at rest from the steam failing. Admitting that the revolutions of the wheel on the strokes of the pistons in the cylinder measure the steam expended in any given time, the coal would have supplied the

Cylinder	6,960	times.
The Wood	5,040	„
Making a difference of	1,920	

measures, which, at 42 per minute, would have required 45½ minutes longer of consumption of wood; to have completed which, at the rate

* Coal has been discovered on both banks of the Indus. The locality is the Salt Range, in the parallel of 32° N.; deposits extending in a longitudinal direction, but not in a north and south one. Ten specimens from the west bank, procured by Captain Burnes, have been analysed by Mr. Prinsep, and four of them pronounced to be the very purest form of mineral coal. Three forwarded by me, and discovered on the east bank, have not yet been examined.

of 11¼ maunds in 240 minutes, would have required 4¼ maunds nearly, which, added to 11¼, would make 15½ maunds of wood to produce the same quantity of steam as 9¼ maunds of coal; but it has been seen that, owing to the weakness of the steam produced by the consumption of wood, to perform the same distance required $\frac{2}{12}$ or one-sixth more time nearly, a detention most injurious to the interests of internal steam navigation."

CHAPTER X.

OF THE INUNDATION.

Like all other large rivers, the Indus is subject to a periodical increase of its water, during the continuation of which it inundates a large tract of country. The river rises in March, and falls in September. From Mittun upwards I have delineated the flooded district upon the chart, but in tracing their boundaries between that town and the sea, I labour under the disadvantage of having to draw my materials as much from hearsay as personal observation.

It may in this place be observed, that the Valley of the Lower Indus owes its abundant crops entirely to the river and its yearly swell. The soil of Sind is naturally poor, producing spontaneously the products of the desert, but, save within the belt of inundation, neither grain for man nor grass for cattle. Even here grass is scanty and coarse; a turf is a thing unknown on the banks of the Indus, and the islands in the stream below Bukkur are nothing more than naked sandbanks. Two consecutive crops exhaust the soil, unless manured. The Natives, it is true, liken it to gold, but the comparison would be more just if applied to the river, the cause of all its fertility. On the banks of the Upper Indus, the soil improves, and were such subject not irrelative to the object of this report, I might proceed to adduce the proof of this assertion, and to investigate the cause of so apparent an anomaly.

In some respects the annual swelling of the Indus is attended with peculiar phenomena: one year the country on its right bank is so deluged that towns and villages, though protected by strong dams, are threatened with inundation, while on the opposite side of the river there may be found, during the same season, a difficulty of irrigation. In thus distributing its favours, the stream exhibits more of constancy than caprice; for when once it has taken to either of the banks, it adheres for a series of years to the favoured side. Another circumstance merits notice. The Mississippi, when in flood, as we learn from Audabon, the talented American ornithologist, inundates the valley to a very large extent. At that season the Squatter and Lumbe river canoes pierce the

thickest recesses of the forest, while flat boats of great burden, and steamers of noble dimensions, are seen moored to stately trees, overhanging its banks. The Ganges, in the lower part of its course, overflows its banks in a similar manner to the Mississippi. During the south-west or rainy monsoon, when the former river is in flood, the whole of its Sunderbunds or Delta lands are, according to Rennel, submerged. With the Indus it is different: inundation is here more often *partial* than *general*, and at the height of the freshes the Persian wheel may be seen watering fields on the verge of its bank. The Khureef and Rubee (autumn and spring) harvests afford the most conclusive evidence in this case: the crops of the first are produced from an irrigated, and those of the latter an inundated soil; while the weight of the Khureef harvest is to that of Rubee nearly as 2 to 1.

On inspecting the accompanying chart of the Upper Indus, it will be seen that the river has double banks, or inner and outer ones: the first of these is as changeable as the navigable channels of the Indus, the latter as permanent as the river's course. The inner banks form its bed in the cold season, when the water is low, and the permanent hem in the floods and freshes of an opposite season. The following table will further illustrate this interesting feature of the Indus, though I believe it is one common to all rivers flowing through plains :—

Outer and Inner Banks of the Indus.

Parallel of Latitude.	Width of the River's Bed.		
	Dry Season S. Water.	Dry Flat.	Surface Water in the Freshes.
26° 28′ N.	1,456 yards.	788 yards.	2,244 yards.
26 44	658 „	1,560 „	2,218 „
27 18	850 „	3,004 „	3,854 „

These double banks accompany the Indus, after it has left the mountains at Kalabagh, for the remainder of its course. Were they permanent or continuous, the inundation would be restricted to narrow and well defined limits, but as this is not the case, I will endeavour to point out where this barrier is broken or wanting.

From Attock to Kalabagh.—No inundation.

From Kalabagh to Mittun.—It may be generally remarked that in the northern part of the Upper Indus there is no inundation, while in the south or lower part of its course the flooded districts are of considerable extent, as a reference to the chart will show.

Mittun to Bukkur.—Neither on the east nor west bank of the river is there, in this division, an outer bank, and the consequence is that the country here is largely inundated. In the Mozarry district the floods

of 1837 were felt twenty miles back from the river; but in ordinary seasons twelve is the more usual measure of their width. On the opposite bank, the inundation about Subzulkote reaches to the edge of the desert.

Bukkur to Sehwan.—Though the permanent banks may be traced in this section, their outline is broken, and the low districts behind them overflowed in the freshes. South to Sehwan, inundation of the west bank is general, though the quantity of uncovered land exceeds that submerged. Chandkote, the most valuable province in Sind, is situated here, and its exuberant crops are to be attributed to its great command of water. Upon the opposite bank, between the river and the desert, is a strip of alluvium; the medial width of it four miles: this belt marks the extent of the flooded districts, but for some years past there has been scarce any inundation upon this side of the river.

Sehwan to Efflux of Fullailee.—The Hala Mountains for some distance below Sehwan prevent the river from expanding in a westerly direction, and a creeping hilly ridge serves the same purpose further south. On this side of the river the inundation is confined to a very narrow belt; on the opposite side, the desert opposes any outlet to the east, and here, though the inundated belt be wider than that upon the west bank, its breadth cannot be estimated at more than three miles.

Efflux of Fullailee to the Sea.—The Delta of the Indus may be said to commence from the efflux of the Fullailee: the lower portion of it only is under water, and the inundation here, as in the upper course of the river, is partial. The submerged part is a belt fringing the sea, measuring in width about twenty miles.*

CHAPTER XI.

FORDS OF THE INDUS.

There are, properly speaking, no fords in the Indus below Attock; that is, there is no spot in its course where their annual occurrence is so certain as to warrant a dependence on their existence at any particular period.

But that the Indus is at times fordable is certain, and, in the course of my inquiries on this subject, I have met with many individuals who

* These observations on the inundation of the Indus south of Mittun are given with much diffidence, as I have not had proper opportunity of inquiry. This does not apply to any remarks on this subject above Mittun.

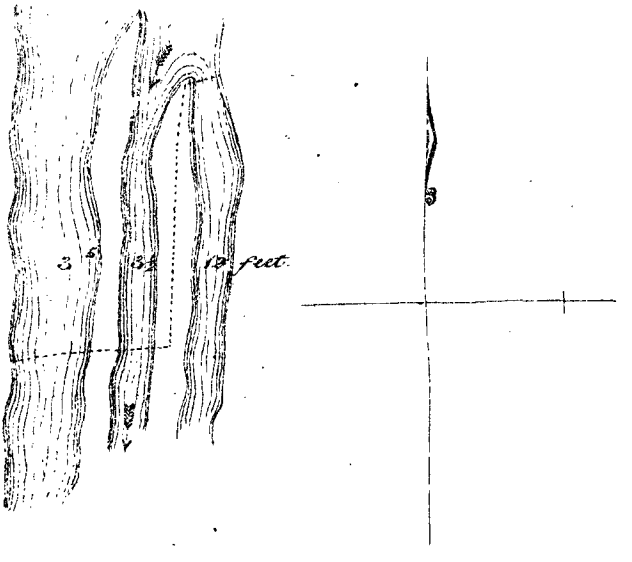
have assured me of their having done it. The practicability of fording the river being once admitted, the subject becomes one of importance, and viewing it in this light, I shall devote more space than I otherwise would to its consideration.

The months in which the river is fordable are December, January, February, and March; no instance is on record of its having been accomplished either north of Mittun or south of Hyderabad in Sind. The Indus, however, does not within the excluded tract run in a deeper channel than in that portion of its course where the stream is known to be fordable; but being less frequented by the boatmen, its capabilities are not so generally known.

The fords are discovered by the annual fleet of grain boats which descend in the cold weather from the upper provinces to Lower Sind. Some boats in this fleet are of so large a draft that their safe navigation calls for the most minute survey of the river's channels; and it is whilst so employed that the boatmen sometimes find they have crossed, almost unknown to themselves, from one bank of the river to the opposite, without once having had to swim.

During the dry season of 1836-37, I had frequent intimation of fords, but was not fortunate enough personally to discover one, for it so happened, that by the time I had got to the spot they had always disappeared. The subjoined sketch is taken down from a trustworthy person, whom I had sent to report on a suspected locality:—

Ford in the neighbourhood of Hala.



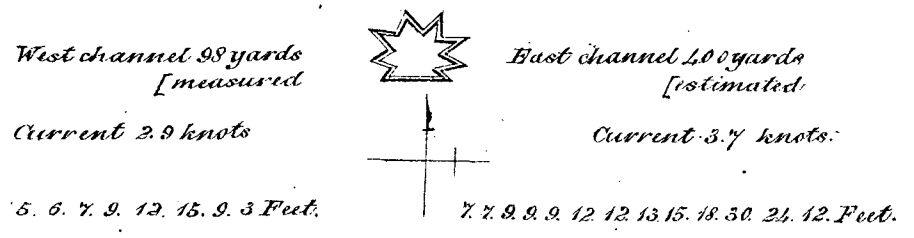
The centre channel is here the continuous one; that on the east side was, however, the deepest, and discharged the most water, but its mouth was closed up by shoals: forty-two boats were lying above the ford, waiting for the channel to open. This was on the 27th of February. The dotted line shows the ford. On this subject I am glad to have the testimony of Dr. Gordon, the officer who went from Loodiana to Bombay with the Maharaja's late mercantile speculation. He tells me that some distance north of Hyderabad he came upon a shoal stretching completely across the river, where many grain boats, unable to pass over it, were lightening their draft, by transferring a portion of their cargo into smaller boats. Dr. Gordon, on finding more water above the shoal than the boats in his charge drew, held on his course.

The custom of bridging the Indus by boats at Attock has prevailed since the days of the Greek invasion.

The place most adapted for this purpose, whether viewed merely with reference to the river itself, or to the Afghan passes that lead down upon it, and which have been not unaptly termed the "Gates of Khorasan," is Bukkur Fort. Here we have a permanent channel, both banks of the river being faced by hard flint hillocks, while in the middle of the stream are some islets of the same material, on one of which is the fort, and contiguous to it, or rather adjoining it, another, containing the tomb of Peer Khaja Khizur. At no other spot below the mountains does the Indus present similar facilities for bridging. The channel here is as follows:—

Above the fortress the river widens to.....	1,244	yards.
In a line with the fort it is less, say.....	1,000	„
The channel between the fort and the west bank of the river is, by measurement	98	yards.
Ditto ditto on the opposite side of fortress, estimated at	400	„
Width of fortress and Isle of Khaja Khizur	502	„
	1,000	yards.

DEPTH OF THE CHANNELS.


West channel 98 yards
[measured
Current 2.9 knots
5. 6. 7. 9. 12. 15. 9. 3 Feet.
East channel 400 yards
[estimated
Current 3.7 knots.
7. 7. 9. 9. 9. 12. 12. 13. 15. 18. 30. 24. 12. Feet.

A spit projects from the north-west end of the fortress, and extends to within fifty yards of the west bank; in this gut the current is four knots an hour; the depths were 6, 6, 7, 7, 6, 6, 6, 6, 5 feet. At the time these measurements were made, the river had twelve feet more to rise; in fact it was then at its lowest level.

Last June (1838) I had an opportunity of examining the bridge of boats at Attock: it contained thirty-six boats, and the river where they were moored had a width of only 540 feet. Its depth by measurements taken the preceding year was ten fathoms, and the current about six knots an hour. By comparing this account of the Attock bridge with the details of the river at Bukkur, it is evident that circumstances are greatly in favour of the former; but surely, if a few untutored boatmen succeed so well at one place, we ought not to despair of our Engineers' success at Bukkur.

The chief, in fact the only difficulty, is mooring the boats, and to effect this the Sikhs use an anchor of a form the very worst that could be imagined, and which has no other recommendation than its antiquity, and, perhaps, the ease with which it can be dropped from the boats; the figure is pyramidal, a skeleton of wood filled with stones. These uncouth machines, when once let go, cannot be recovered, and as the strength of the bridge is not proof against that of the current in June, July, August, and September, a new set has to be made as often as the bridge is required to be constructed. Now, were a lining of mooring anchors once laid down in place of these wooden baskets, and beyond, chain bridles attached to them, a bridge of boats could be put together in about as many hours as days and weeks are now consumed in preparations. The number of boats required to form the bridge would be built of a form the best that science could propose, and always kept in a state of readiness to haul out to their several berths, numbered as the buoys would be 1, 2, 3, &c. A bridge so formed would be a very solid construction, and able to brave, under proper superintendence, the strongest freshes in the Indus, whether abreast of Attock, or under the fort at Bukkur. Should it become necessary to destroy it, one end of the bridle chain has only to be slipped, and the mooring anchors are useless to an enemy. But little weight is due to the opinion of men who, not conversant with military affairs, cannot be expected to have clear ideas on such subjects; but still I venture to hold the opinion that bridging the Indus at Bukkur is a practicable question. The difficulty would be to moor boats in the eastern channel; but this once accomplished, the bridge might be made permanent, as the small western channel would serve for the navigation of the river.

CHAPTER XII.

OF A SITE FOR A FAIR.

While Government has it in contemplation to establish an entrepôt for trade on the banks of the Indus, it will not be irrelative to the subject of this Report briefly to say a few words on the locality of those towns where the mart is likely to be fixed. This question will, perhaps, be ultimately decided more by the existing foreign relations of the different towns at the time when this selection is made than with reference to their geographical position, or their local site. Shikarpoor has hitherto been excluded from the list of places best adapted to answer the purpose of Government, but, in the turn which current events may give to the political relations of Afghanistan, that town may yet become one of the entrepôts for the trade of Central Asia.

Shikarpoor is not destitute of collateral advantages. The large money transactions of its bankers,—the extensive and skilfully organized agency which they have diffused,—are known to all interested in these matters, though the advantages of such an establishment can only be duly appreciated by merchants themselves. With steamers upon the Indus, the proximity of the town to Bombay, the market for Europe goods, is favourable to its site as a mart, and were Bukkur fort in our possession, the British flag upon that fortress would win confidence by guaranteeing security.

The "Zeearut" of Khaja Khizur, a Peer alike worshipped by Mahomedan and Hindoo, adjoins the fort of Bukkur, and on the anniversary of a certain day in April, multitudes of both creeds flock to this shrine. Opposite, in the town of Roree, is a place of pilgrimage of still greater sanctity, for here, say the faithful, is preserved a lock of the Prophet's hair.

The distance of Shikarpoor from the river operates unfavourably to its becoming a commercial mart; it lies eighteen kos inland of its port of Sukkur. From May to September inclusive, boats can come up to the town by means of a fine canal called the Sind, and were this work deepened, and connected with the Larkhana Canal, or the Noraub branch of the Indus, we should have an inland navigation throughout the year between Sehwan and Shikarpoor. It would traverse the richest portion of the Sindian territories, and make an intricate navigation of a hundred kos upon the main river. So admirably is the country adapted for this means of transit, that throughout the entire line not a single lock is necessary, save for occasionally cleansing out the canal. The returns would be great, and the outlay very moderate, compared to

that of similar works in countries where natural obstacles have to be surmounted, and labour is a more valuable commodity than in Sind.

The country around Shikarpoor is subject to inundation; but west of the town, and contiguous to the suburbs, is a dry plain, where buildings to any extent could be erected.

I do not believe there is a healthy spot upon the banks of the Indus: in this respect there is little choice. Some towns have ailments peculiar to themselves, but from the day the river begins to fall, in September, to the end of November, asthma and fever are common from the mountains at Kalabagh to the sea.

Bukkur Fort and *Roree* are built upon hillocks of flint, which, though not high, render both these places more healthy than towns in the plain: the first is a fortified islet amid channel, and Roree overhangs the left bank of the river, with a depth of four fathoms water under its walls. As a depôt for military purposes, or an entrepôt for commerce, much could be written in favour of each of these places.

Mittun.—The geographical position of Mittun is superior to that of any town upon the Indus. In addition to commanding the navigation of both the Indus and Punjaub streams, it stands midway between the gates (as the Natives term them) of Khorasan, namely the passes of Bolan and Sakh-i-Surwar; while immediately behind it are the entrances to the former pass, by the auxiliary routes of Assin and Hunund. The town is built upon a small artificial mound, and, when the freshes are in the river, is surrounded on three sides by water. It is two miles distant from the Indus, but from the middle of June to about the 22nd of September, boats can discharge or take in cargo immediately under the town, by means of a fine natural watercourse, navigable down to Baugala and Omerkote. South of Mittun is a dry plain, that fringes the above nulla; and should this town be preferred for the site of a fair, it is on the banks of this stream that booths and other buildings should be erected. During the inundated months, camels cannot travel north or west from Mittun.

The inhabitants prefer well-water to that of the Indus. When the river has been falling for four or five successive days, to drink the nulla water is almost certain to bring on an attack of illness: this the Natives attribute, and I think very properly, to the vegetable matter which on such occasions must be brought into the watercourse by the drainage of the inundated districts.

Mittun, and the village of Chatchur, upon the opposite bank, can, taken together, supply forty boats of from 100 to 1,000 maunds burden.

I ought before to have said that cutaneous eruptions trouble the inhabitants of Mittun: the sores frequently become ulcerated, but though difficult to heal, the disease does not appear to affect the general health.

Dhera Ghazee Khan.—This town has been more than once endangered by the inundation. When Nuwab Jubbar Khan, the brother of Dost Mahomed Khan of Kabool, was Governor of the province, a wall that surrounded the town had to be thrown down to keep the water out; nor is there within a circle of many miles a spot exempt from its effect. Dhera Ghazee Khan is situated about four miles from the river, but, in the swell, like most of the other towns upon the Indus, it has a large navigable canal, by which it may be approached by boats for some months. Dhera Ghazee Khan has, however, advantages that it will be difficult to set aside: the town lies at the foot of a pass in the Sooliman Mountains, that leads both to Kabool and Kandahar, while it is equally central with respect to the Indian routes.

It is the largest town upon the Indus, and even under the Sikh rule it wears an appearance of increasing prosperity. Its merchants, though they do not speculate largely, have an extensive agency, and a considerable command of money. The country around yields heavy crops of grain, and the staples of cotton and indigo; while its home manufacture of silken stuffs, such as Gool-buddens, Timorees, &c. is only equalled by the manufacturing marts of Bhawulpoor and Mooltan. When to the above recommendations are added the fairs at Peer Abdul and Sakh-i-Surwar, I believe that, everything considered, Dhera Ghazee Khan, or rather some spot in its vicinity, will at once be considered as the most eligible place to lay the foundation stone of an Indian St. Mecreare. By a reference to the map it will be seen that Sakh-i-Surwar and Peer Abdul are towns in the district of Dhera Ghazee Khan. At each of these places a large Mala or fair is annually kept. That of Sakh-i-Surwar occurs in the Indian month Wysakh, answering to our March. It is held in honour of the Peer after whom the place is named. The fair lasts five days, and pilgrims from India's furthest shores come to prostrate themselves at the tomb of Sakh-i-Surwar; few come from the countries lying west of the Sooliman Range, and the followers of Brama outnumber those of Mahomed;—the aggregate of both cannot be much under 100,000 souls. Though commerce is not neglected, there is but little business done: a Khorasan or Afghan horse-dealer may now and then exchange an animal of his stud for the productions of India or the manufactures of Europe; but this Mala is essentially an assemblage for devotional and pleasurable purposes. But with such a material, and the example of the holy Mecca, it is easy to foretel that, when the fair is established, many individuals in this annual concourse of devotees will become as enterprising merchants as they are now zealous and bigoted Fakeers. Sakh-i-Surwar is twenty-four kos nearly directly west of Dhera Ghazee Khan; it is a considerable town, situated in the mouth of the pass. Firewood is abundant, and a mountain

rivulet supplies the town with water. At Peer Abdul-a-Zeearut, seven kos in a north-west direction from Dhera Ghazee Khan, a fair is held in February, similar to that of Sakh-i-Surwar.

Dhera Ismael Khan is never inundated from the river, but is yearly flooded by mountain torrents. The present town lies about a mile back from the river, and was built eight years ago, when the old Dhera was washed into the Indus. Dhera Ismael Khan is well planned, and when its skeleton streets are filled with occupants, they, for width and cleanness, will match with those of most Eastern towns. The houses are of mud or sun-dried brick, terrace-roofed, and rise from a ground platform of from one to two feet high; few are of more than one story. When I passed through it, in the middle of summer, the bazar was well frequented, but in the winter months it is much more thronged. The town is a sort of nucleus or rallying point for those pastoral tribes of Afghanistan who prefer a clement winter in the valley of the Indus to the severity of that which characterizes the mountain districts of their own land; carriage is thus almost unlimited, as some of these tribes rear camels for no other purpose than to put them out to hire. The Lohanas, who, from before the time of Baber, have been the great carriers and traffickers of these countries, still frequent Dhera Ismael Khan; the transit trade of India and Afghanistan is already fixed here; and if the routes radiating from the town are considered merely in reference to Kabool, then is Dhera Ismael Khan better situated for a commercial mart than towns lower down the river. These are all the places that present themselves as eligible spots for the establishment of commercial depôts west of the Indus; but should it ever become an object to Government to have the mart within their own frontier, then Leia, upon the Indian bank of the river, lying midway between the two Dheras, is its proper site.

But to give full effect to these fairs it is desirable that two be established, one for the Lower Indus, and another for the Upper: the latter will supply, besides the markets of Eastern Afghanistan, those of Central Asia, beyond the Paropanesian chain; the other, by the roads of Kandahar and Khelat, will draw from Beloochistan, the districts around Herat, and the southern province of Persia, their staples of wool, assafœtida, and madder; while in return it can supply the whole of this extensive region with the growth of India, and manufactures of the British Isles, at a cheaper rate than can be done by any other route. Thus, should a general war in Europe exclude England from the Black Sea, an outlet almost equally good for the staples of her trade is offered by the Indus, with an entrepôt at Bukkur, and another in the Dherajat.

CHAPTER XIII.

THE INDUS, AND PUNJAUB RIVERS.

Travelling over the Punjaub in a westerly direction, when its rivers are in flood, a little above the parallel of Kalabagh, no less than five streams are crossed, each occupying a larger bed, and seeming to the eye a more important river than the Indus.

The Punjaub rivers, as is well known, fall into the Indus in one stream, and if we call our attention to the confluence of their united volume with the latter, the result is strikingly at variance with appearances and preformed opinions.

About the middle of May I examined both, when the relative size of the Indus and its Indian feeders stood as follows :—

Indus or Sind.	*Chenab or Punjaub.*
Width 608 yards, maximum current 4·8 knots.	Width 1,766 yards, maximum current 1·8 knots.
¾ 1 1 1 1 1¼ 1½ 1½ 1¾ 2 2 2¼ 2¼ 2½ 2½ 2½ 2½ 2¼ 2 2½ 2 1½ 1 ¾ ½ ½ ½ fathoms.	2½ 2 2 1¾ 1½ 1¾ 1½ 2 1½ 2 1½ 1½ 1¾ 2 2 2¼ 2 1½ 2 2¼ 2 1½ 1½ 1¾ ½ ½ ½ ½ ¼ fathoms.
Discharge per second 91,719 cubic feet.	Discharge per second 68,955 cubic feet.

Here the principal cause of the disproportionate size of the Indus is the early commencement of its freshes. Indebted for its periodical rise principally, if not solely, to snow-clad mountains, an increase is first perceived in its stream when the sun comes into our northern latitude at the vernal equinox, in March; but the Punjaub rivers, depending for their's upon another and less constant source, namely the rainy season of Hindoostan, have their freshes later.

At the time of my examination in May, the Sutlej, the most eastern of the Punjaub rivers, was at its lowest level, while the Jhelum, the most western of the five rivers, and the one which has its source nearest to that of the Indus, had already shown signs of rising; from all which I am inclined to think that measurements made in July would give, if not an entirely different, a less disproportionate result in the amount of water discharged by the Indus and its Punjaub auxiliaries.

But that the Indus is a superior river to the Panjnud seems very clear, and among the collateral proofs of this, which may be urged, is the direct nature of its course compared with those of the Punjaub streams; also the dread in which the river is viewed by the Mohanas, who, were the choice left to themselves, would prefer dragging their boats twenty kos up the Chenab to half that distance upon the Sind.

Another circumstance connected with these two rivers is deserving of notice: in the Doab, or country lying between them, all canals are cut from the Sind in the month of July; when both rivers are in flood, the surplus water of the Sind pours down into the Chenab, proving that though their beds for a distance of sixty miles are not more than ten asunder, yet that in their relative level there is a considerable difference.

It appears to me that Captain Burnes has erred in giving so large a fall as twelve inches a mile to the Punjaub streams, and but half that quantity to the Indus. In the dry weather, the latter river has decidedly a much stronger current than any of those streams; and even in the freshes their current, as far as I have been able to observe the Punjaub rivers, is not so strong as that of the Indus. On the 27th of June this year the current of the Ravee at Lahore was not more than three knots an hour, and neither that of the Jhelum nor Chenab exceeded four.

CHAPTER XIV.

CONCLUDING REMARKS.

It has been matter of regret that so noble a river as the Indus should have no port accessible to vessels of burden. The disappointment is, however, more imaginary than real: if, indeed, the merchant is necessitated to employ ships of four and five hundred tons burden, such a class of vessels cannot enter the river, and he must land his goods at Kurachee, the only port in Sind open to vessels of this description; but if, on the contrary, he prefer water carriage to a long portage, why not avail himself of Native tonnage? In the fair season hundreds of boats frequent the mouths of the Indus; they are the common coasting vessels of Kutch, and none of those engaged in the trade exceed, when laden, a draft of nine feet; the average draft is six and seven. I believe that the principal mouth, namely the one that discharges the greatest body of water, will ever be found the least navigable, and that the port of the Indus, though it may fluctuate between the Lukput Creek and Kurachee, will always be situated in a secondary branch, discharging little or no fresh water, but connected with the main stream by a creek or navigable channel, open only to the flat boats of the river. But even admitting that a vessel drawing seven feet water could get upon the main trunk: nothing would be gained, as no other description of vessel than the

light-drafted steamer already noticed will be found to answer upon the Indus, and such vessels will also be able to keep up the communication between the sea-going craft and the main river. If, then, a portage is thus shown to be unnecessary merely to give free access to the river, it is equally useless by way of avoiding the difficulties of navigation in any particular part of its course. In my former report I did, indeed, advocate the plan, but I did so then from hearsay; now I give the result of my own observation. The navigation of the Delta is certainly intricate, but the difficulties are not so insurmountable as to render a portage desirable; nor does the river improve so much above it as I was at the time given to understand.

In one respect the authorities on the river have it in their power to confer a considerable boon on the navigation of the Lower Indus: the only obstacle in the river from which danger is to be apprehended, and which no attention can effectually guard against, is sunken trees. Now the river brings down none of these from the mountains; all come from the Shikargah or hunting preserves of the Sind Ameers; the supply might be cut off without material injury to these forests, or interfering with their Highnesses' amusements: let the Ameers but give an order that between the Shikargah and the river a clear belt of twelve yards wide be left, and in a few weeks their numerous foresters will have cut down a twelvemonth's fuel for our steamers, and ensured a path for the trackers. As these forests do not extend north of Sehwan, the operation would not require to be carried above that town, the jungle wood there being too small to affect the channels of the river.

APPENDIX.

TABLE No. I.

Comparison of Chronometers.

Dates.	Chronometers.		Difference.	
	No. 256.	No. 257.	1st.	2nd.
1836				
Dec. 27th	4 18 00	4 31 05	13 05	2·0
28th	4 13 30	4 26 37	13 07	2·0
29th	4 26 50	4 39 58·5	13 08·5	1·5
30th	4 11 15	4 24 25·5	13 10·5	2·0
1837				
Jan. 1st	4 12 35	4 25 49	13 14	1·7
2nd	4 36 05	4 49 21	13 16	2·0
10th	4 44 35	4 58 06·5	13 31·5	1·9
11th	4 42 35	4 56 08·5	13 33·5	2·0
12th	4 48 20	5 01 55·5	13 35·5	2·0
Feb. 15th	11 51 35	12 06 23·5	14 48·5	2·0
20th	11 18 30	11 34 31	15 01	2·5
26th	10 49 15	11 04 28·5	15 13·5	2·1
March 1st	10 48 00	11 03 19	15 19	1·8
5th	11 09 50	11 25 16	15 26	1·9
9th	4 38 00	4 53 32·5	15 32·5	1·8
April 9th	4 18 30	4 34 59	16 29	..
14th	4 02 21·5	4 19 00	16 38·5	1·9
17th	4 24 14·5	4 41 00	16 45·5	2·3
18th	4 00 12	4 17 00	16 48	2·5
19th	3 49 10	4 06 00	16 50	2·0
20th	3 54 37·5	4 11 30	16 52·5	2·5
27th	3 34 49	3 52 00	17 11	2·6
29th	4 00 14	4 17 30	17 16	2·5
May 19th	3 35 56	3 54 00	18 04	2·4
20th	2 51 53·5	3 10 00	18 06·5	2·5
1838				
July 16th	9 59 00	5 47 07·5	4 11 52·5	3·5
17th	8 03 00	3 51 05	4 11 55	2·5
18th	9 56 58	5 45 00	4 11 58	3·0
19th	9 43 00	5 30 59	4 12 01	3·0
20th	7 43 00	3 30 56	4 12 04	3·0

TABLES No. II.

From Mittun to Dhera Ghazee Khan.

[The Timekeepers were examined at Mittun, and again at Dhera Ghazee Khan. The following Table shows the result of each rate, while for the Longitude it gives a mean of both.*]

Stations.	Latitudes.	Difference of Longitude by			Longitude.
		Mithenkote.	Dhera Ghazee Khan.	Mean.	
No. 1..	28° 58′ 23″ N.	....	....	....	.....
2..	29 04 38	03′ 57″ E.	04′ 21″ E.	04′ 09″ E.	70° 30′ 34″ E.
3..	29 12 49	10 45	11 10	10 37	37 22
4..	29 23 44	12 54	13 31	13 12	39 37
5..	29 31 53	25 36	26 20	25 58	52 23
6..	29 42 00	25 15	26 01	25 38	52 03
7..	29 53 00	28 34	29 20	28 57	55 22†
8..	30 06 02	27 34	28 34	28 04	54 29

Dhera Ghazee Khan to Dhera Ismael Khan.

[The Watches were examined at both these places, and the following Table gives the Longitude of the intermediate Stations, deduced from a mean of the old and new rates.]

Stations.	Latitudes.	Difference of Longitude by Route.			Longitude.
		Old.	New.	Mean.	
No. 1..	30° 33′ 19″ N.	02′ 00″ E.	01′ 51″ E.	01′ 55″ E.	70° 56′ 24″ E.
2..	30 56 49	01 00 W.	01 18 W.	01 09 W.	70 53 20
3..	31 09 09	01 10 E.	00 39 E.	00 55 E.	70 55 24
4..	31 24 55	04 42	04 24	04 33	70 59 02
5..	31 37 16	09 57	09 21	09 39	71 04 08
6..	31 42 30	05 03	04 24	04 43	70 59 12
7..	31 47 54	06 30	05 50	06 10	71 00 39

* Mittun was fixed from Roree. † Indifferent.

TABLES IN WHICH THE GEOGRAPHICAL POSITION OF POINTS AND PLACES IN THE LINE OF THE INDUS, AS THEY STAND IN THE PUBLISHED MAPS, ARE COMPARED WITH THE OBSERVATIONS OF THE PRESENT MISSION.

TABLE No. III.

From the Sea to Mittun.

Places.	Latitude.		Longitude.	
	Map.	Mission.	Map.	Mission.
Baree Gorah	24° 12′ 00″ N.	24° 13′ 20″ N.	67° 54′ 30″ E.	67° 36′ 00″ E.
Efflux Hujamree	24 08 42	24 14 42	67 57 00	67 47 03
Tatta Bunder.	24 44 00	24 44 30	68 19 00	68 01 06
Hyderabad do.	25 22 00	25 22 04	68 41 00	68 23 03
Sehwan do.	26 22 00	26 22 35	68 09 00	67 55 17
Roree do.	27 43 29	27 41 59	68 56 00	68 55 39
Chatchur do.	28 53 29	28 52 07	70 31 00	70 27 57
Mittun do.	28 54 00	28 53 19	70 29 00	70 26 25

TABLE No. IV.

From Mittun to Attock.

Places.	Latitude.		Longitude.	
	Map.	Mission.	Map.	Mission.
Nowshera	29° 11′ 00″ N.	29° 12′ 19″ N.	70° 38′ 00″ E.	70° 35′ 28″ E.
Raik..	29 21 00	29 24 20	70 45 00	70 39 01
Sherroo	29 42 00	29 42 00	70 58 00	70 50 03
Dhera Ghazee Khan....	29 58 00	30 03 26	71 00 00	71 51 23
Dhera Deen Punah*....	30 40 00	30 33 19	71 06 00	71 00 24
Dhera Deen Punah†....	30 51 30	30 39 20	70 57 30	....
Leia	31 08 00	30 58 01	71 05 00	70 59 23
Rajun.....	31 14 00	31 08 39	71 06 00	70 57 42
Khaheree	31 30 00	31 24 25	71 01 00	70 54 02
Bukkur	31 44 00	31 37 16	71 14 00	71 06 28
Dhera Ismael Khan	31 57 00	31 48 39	71 07 00	70 59 30
Kalabagh	33 07 00	32 57 36	71 49 00	71 35 23
Confluence of Sehwan ..	33 10 00	33 01 48	....	....
Attock	33 55 40	33 53 53	72 27 00	72 16 27

* East bank. † West bank.

TABLE No. V.

SECTIONAL OR CROSS-RIVER SOUNDINGS.

Parallel of Latitude.	Soundings.	Width.
	In the Delta, in the Months of December and January.	Yards.
24° 17′ N.	5 6 7 6 5½ 5 4½ 4 4 3 2 2 2 1¾ 1½ 1 1½ fathoms.	
19	¼ 2 3¼ 4 4½ 6 5½ 5½ 6 4 3½ 3½ 3 3 2½ 2½ 2¼ 2 2 2 2 2½	734
21	1½ 1½ 2 3 3½ 3½ 1½ 1½ 2 2 3 2½ 2½ 2½ 1 2 2½ 2	631
26	1½ 1½ 1½ 1½ 1½ 1½ 1½ 1½ 1 1½ 1½ 1½ 1½ 1½ 1½ 1¾ 1¾ 1¾ 1¾ 1¾ 1¾ 1¾ 1½	455
28	1 1 1 1¼ 1½ 1¾ 2 2¼ 2 2 2 2 2 1½ 1½ 1½ 1 ½	1,277
34	¾ ¾ ¾ ¾ 1 1¼ 1¼ 1½ 1½ 1¼ 1¼ 1½ 1¾ 2 2 2 2¼ 2¼ 2¼ 2¼ 1 1 1 ½ ½	
37	1 1 1 1 1 1¼ 1¼ 1¼ 1¼ 1¼ 1 1 1 1¼ 1½ 1 1 1 1 1¼ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 ¾ ¾ ½ ½	841
44	1 1 1 1½ 3 3 3 4½ 3½ 3 2 1½ 1 1 1 1 ¾ ¾ ½	691
47	¼ ½ ½ ¼ ¼ ½ ½ ¾ 1 1½ 2 3 3½ 3½ 3½ 3	
48	½ 1 ½ 1½ 1½ 2 2½ 4 1 1 1 3 3 3 3 3½ 2½ 2 1¾ 1 1 1 ½	
	1007 do. 1 1 1 1 ½	1,132
50	1 2 2½ 2 2 1½ 1½ 1 2 2 1¼ 2 2 2 1¾ 1½ ½ 2 1 1 1 1¼ 2 ¾ ¾	
	Between the Delta and Sehwan, in the Months of January and February.	
54	1 1 1¼ 1¾ 2 1½ 1 1 1 1¼ 1 1¼ 1¼ 1½ 1½ 1½ 1½ 1½ 1¾ 2 1½ 1	780
58	1 1 1½ 1¾ 2 2 2 2 2 2 1¼ 1 ¾ ¾ ¾ ¾ ¾ 1 ¾ 1 1¼ 1 1 1 2 1¾ 1¼ 1¼ ¾ ½	978
25 00	¾ ½ ½ 1 1 1¼ 1½ 2 2½ 2 1½ 1¼ 1	834
13	1½ 1½ 3 3 2½ 2 1¾ 1½ 1½ 1¼ 1½ 1 1	590
19	3 3½ 3½ 3½ 3 3 2¼ 1½ 1¼ 1 ½ ½ ½	400
22	¾ 1¼ 1 1 1 1¼ 1 1¼ 1½ 1½ 1¼ 1 1 1 1 1 1 ¾ ¾ 1 1½ 1¾ 1¾ 1½ 1½ 1½ 1 1¾ 1½ 1 1½ 2½ 2	
25	4½ 3¾ 1½ 2¼ 1½ 1½ 1	518
31	1 1¼ 1¾ 1½ 1¼ 1 1 1¼ 1¾ 1½ 1¾ 1¾ 1¾ 1½ 1 ¾ ½	460
35	½ ½ ½ ¾ ¾ 1 1 1 1¼ 1½ 1½ 1½ 1¾ 2¼ 2½ 2¾	700
26 00	1 1½ 1¾ 2 2¼ 2 2 2 1¾ 1½ 1½ 1½ 1½ 1½ 1¼ 1¼ 1	522
11	1 1½ 1½ 1½ 1 1 1 1½ 1 2 1½ 1½ 2 2 2 1½ 1 ¼ ½ ¼	600
16	3 4 4¼ 4¼ 3½ 2½ 2 ¾ ¾ ¾ ¾ ½ ¾ ¾ ¾ 1 1 1 1½ 1½ 2 2½ 2½ 2¾ 1 1 1 1 ¾ ½ ¾ ¾ ½ ¾ 1 1¼ 1¼ 1½ 2 2 1 ½	1,000

Parallel of Latitude.	Soundings.	Width.
	Between Sehwan and Bukkur, in the Months of February and March.	Yards.
26° 24′ N.	¾ ¾ ¾ 1 1¼ 1½ 1½ 1½ 1½ 1½ 1½ 1½ 1½ 1½ 1¾ 1¾ 1¾ 1½ 1½ 1½ 1½ 1¼ 1¼ 1¼ 1¼ 1 1 ¾ ½ : : :

Parallel of Latitude.	Soundings.	Width.
28° 30′ N.	1 1 1 ¾ ¾ 1 1 1 1 ¾ ¾ ½ ½ ½

TABLE No. VI.

IRREGULARITIES IN THE BED OF THE INDUS.

Soundings.

	Fathoms.
Between Attock and Kalabagh there is at some places a depth of (in the freshes)	31
Between Kalabagh and Dhera Ismael Khan, under the mountains on the west bank, ditto	10
Between Dhera Ismael Khan and the sea (influence of the tide) never had a greater cast than	6
The result of a register kept at Hyderabad gives the mean depth in the freshes at about	4
But the common depth in the freshes is	2¼

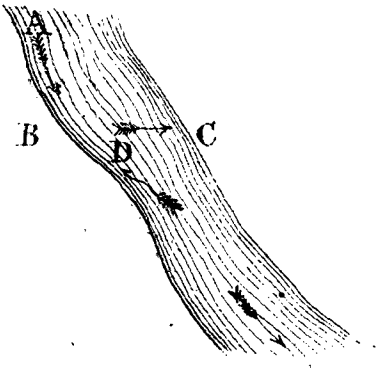
Current.

	Miles.	Yards.
The usual current in the freshes is	5	992
When the freshes are strong	6	1,272
The greatest measured velocity	8	323
Between Attock and Kalabagh, where the river is hemmed in by mountains, it is estimated in the freshes at	10	
In the dry season, usual	2	1,376
Ditto ditto, when strong	3	1,248

In a channel 1,855 yards wide, the current in the middle of July has been found to vary its strength in different depths, as follows:—

¼	fathom	=	2·7 knots.
½	„	=	3·4 „
1	„	=	4·7 „
1¼	„	=	2·9 „
2	„	=	4·8 „
2¼	„	=	5·8 „

By experiments with Massy's patent log machine, the ground current of the Indus has been found equal in velocity to that of its surface.



When the stream A encounters the bank at B, it is thrown off in the direction C; that part of the bed marked D is thus cut off from a further supply. An inequality in the level is the immediate consequence, to restore which a surface stream rushes up, as represented by the waved arrow in the figure; but as the water at the bottom of the space D runs off by the declivity of the river's bed, no equilibrium can take place, while a rotatory motion, fatal to the bank, is given to a large body of water in its immediate vicinity.

TABLE No. VII.

Tonnage upon the Indus.

Boats.	Kurwars from									No. of Boats.	Remarks.
	100.	80 to 90.	70 to 80.	60 to 70.	50 to 60.	40 to 50.	30 to 40.	20 to 30.	10 to 20.		
Doondees ...	7	33	47	50	70	70	100	100	150	627	Between the Sea and Bukkur.
Doondees ...	..	..	..	..	..	..	..	11	..	11	Bukkur and Mittun.
Zohruks ...	..	..	..	..	..	..	60	..	..	60	
Zohruks ...	..	..	..	..	..	..	..	107	..	107	Mittun and Kalabagh.
Duggas.....	..	..	..	..	..	..	10	..	..	10	
Duggas.....	..	..	..	..	..	..	..	46	..	46	Kalabagh and Attock.
Total...	7	33	47	50	70	70	170	264	150	861	Sea to Attock.

Abstract.

Upon the Lower Indus are....	627	boats, carrying	25,530	Kurwars.
Ditto Upper ditto	188	ditto	6,550	ditto.
Ditto Attock ditto	46	ditto	1,150	ditto.
Total....	861	ditto	33,230	ditto.
Deduct for old and worn out....	161	ditto	5,635	ditto.
Boats....	700,	carrying	27,595	Kurwars,

available between the sea and Attock, in which neither fishing craft nor the boats of the Punjaub rivers are included.

TABLE No. VIII.

Price of Boats at Pind Dadun Khan.

A Zohruk, cedar built, of 100 maunds, costs 100 Nanuk Shahee Rupees.

Ditto	200	ditto	200 to 225	ditto.
Ditto	300	ditto	300	ditto.
Ditto	400	ditto	350	ditto.
Ditto	500	ditto	450	ditto.
Ditto	600	ditto	475	ditto.
Ditto	700	ditto	500	ditto.
Ditto	800	ditto	500 to 600	ditto.
Ditto	900	ditto	600 to 700	ditto.
Ditto	1,000	ditto	700 to 800	ditto.

TABLE No. IX.

Hire of Boats.

On the Lower Indus, Doondees of 16 Kurwars, 1-¾-0 Korah Rupees per diem.
Ditto ditto 35 ditto, 3-½-0 ditto.
Ditto ditto 40 ditto, 3-½-7 ditto.
Ditto ditto 38 ditto, 3-½-0 ditto.
Ditto ditto 60 ditto, 4-¾-0 ditto.

On the Upper Indus, Zohruks of 500 maunds, at 10 Rupees (Goondah) per month.
Ditto ditto 700 ditto, 60 ditto.

And in the same proportion for boats of a greater or less burden.

NOTE.—The Nanuk Shahee and Bombay Rupees are equal; the Goondah is one anna short of the Nanuk Shahee.

127 Korah = 100 Rupees, Bombay.
18 Maunds = 1 Kurwar.

PRACTICAL REMARKS

ON THE

PLANTS OF SIND;

AND

THE USES OF CERTAIN OF THE WILD PLANTS, IN MEDICINE, THE ARTS, AND DOMESTIC ECONOMY.

ACCOMPANIED BY BRIEF NOTES RELATIVE TO ARTICLES OF CULTIVATION SUITABLE TO SIND, TO WHICH ATTENTION MIGHT BE DIRECTED.

BY THE LATE

ASSISTANT SURGEON J. E. STOCKS,

BOMBAY MEDICAL ESTABLISHMENT.

Submitted to Government on the 2nd March 1848.

THE PLANTS OF SIND.

GENERAL REMARKS.

THE following remarks are exceedingly imperfect, inasmuch as only a small part of the country has been visited, and nearly all the plants have been gathered in one year; nevertheless, they will afford some idea of the nature of the Flora, and the results are already curious enough.

About three hundred truly wild plants have been collected, of which one hundred, or a third of the whole, have not been previously noted in India. These are nearly all Arabian and Egyptian plants, sixty of them actually growing in those countries, and thirty being new, but referable to the Arabian type. The remaining two hundred are common to Sind, and most parts of India, and are identical with plants found in the Punjaub, in the sandy deserts to the east of Sind, and in Guzerat, more especially the dry northern parts of that province, from Ahmedabad up towards Deesa.

These facts are of value in considering the details of cultivation in Sind, when taken in connection with peculiarities in the soil and climate.

The productions of one country may be introduced, without fear of failure, into another, when the soil and climate agree to a great extent, and when the indigenous vegetation is similar.

There is no doubt that whatever is cultivated in Egypt, in Arabia, and in the countries bordering the Persian Gulf, may be grown with success in Sind; which cannot be said of any other province in India.

The common characters are *great summer heat*, but little tempered by rain; *great winter cold; a dry soil;* and *similar geological formations*.

These characters determine the wild vegetation, which is also similar. The indications for culture are therefore the same. It would be useless to detail all the plants hitherto observed in Sind; I hope to do that at some future time, when more perfect materials shall have been collected.

It will be necessary, also, to pass over the peculiarities of vegetation

in the different tracts of country,—an abundantly curious subject. It is enough to say that the salt soils are indicated by *Salsolas* and *Tamarisks;* the sandy soils by thorny *Acacias;* the clay soils by *Salvadoras*, and the rock by *Euphorbia Nereifolia.*

Two tables are added to these necessarily short remarks,—one of the Natural Orders, which shows a *proportionably* greater number of plants, when compared with the whole mass of Phænogamous Vegetation, than is the case in India proper; and the other containing Lists of Plants, pointing out the affinities of the Sind Flora.

NATURAL FAMILIES, forming a peculiar feature in the Vegetation, and which have a proportionably greater number of Species than is the case in Tropical India.

Cruciferæ	The Cabbage Tribe.
Resedaceæ	The Mignionette Tribe.
Capparideæ	The Caper Tribe.
Tiliaceæ	The Linden Tribe.
Malvaceæ	The Mallow Tribe.
Xygophyllaceæ	The Guiacum Tribe.
Portulaceæ	The Purslane Tribe.
Ficoideæ	The Mesembryanthemum Tribe.
Phytolaccaceæ Borragineæ	The Alkanet Tribe.
Chenopodeæ	The Goosefoot Tribe.
Polygonaceæ	The Rhubarb Tribe.

LISTS OF PLANTS, pointing out the Affinities of the Sind Flora.

ARABIA.

Plants actually found in Arabia.

Cleome Vahliana. (Fres.)
Capparis Decaisnei. (Hochst.)
Cadaba farinosa. (Forsk.)
Corchorus humilis. (Munro.)
Neurada procumbens. (L.)
Hedyotis aspera. (Heyne.)
Serræa incana. (Cav.)
Xygophyllum simplex. (L.)
„ album. (L.)
Fagonia Arabica. (L.)
Tribulus pentandrus. (Forsk.)
„ alatus. (Del.)
Orygia decumbens. (Forsk.)
Baileria Hochstetteri. (Nab. E.)
„ acanthoides. (Vahl.)
Boerhaavia dichotoma. (Vahl.)
Aspheragus. (Sp. indet.)
Asphodelus fistulosus. (L.)
Ephedra alata. (Dec.)
Forskalea tenacissima. (L.)
Salvia. (Several sp.)
Phœnix dactylifera. (L.)
Solanum cordatum. (Forsk.)
Ochradenus baccatus. (Del.)
Cometes Surattensis. (L.)
Grantea. (Sp. 2, indet.)
Convolvulus Forskallii. (Del.)
„ microphyllus. (Sieb.)
„ capitatus. (Vahl.)
„ rhynchospermus. (Hochst.)
„ arvensis. (L.)
Cuscuta Arabica. (Fres.)
Seddera latifolia. (Hochst. and St.)
Rhazya stricta. (Dec.)
Balsamodendron Roxburghii. (Arn.)
Dodonæa. (Sp. indet.)
Heliotropium Europeum (L.) var. Schimperi.
„ brevifolium. (Wall.)
„ marifolium. (Ret.)

Arnibia Cuspidissima. (Alph. D. C.)	Tamarix Orientalis. (Forsk.)
Trichodesma Africanum. (R. B.)	Cleome droserifolia. (Del.)
Ehretia obtusa. (Hochst.)	Anticharis Arabica. (Enal.)
Heliophytum erosum. (Alph. D. C.)	Taverniera nummularia. (D. C.)
Phelipæa lutea. (Desf.)	Roseda Mediterranea. (L.)
Reaumuria hypericoides. (W.)	Mamordica balsamina. (L.)
Aizoon Canariense. (L.)	Catha (Sp. 1, indet.)
Lycium Europeum. (L.)	

Plants Arabian in type.

Cleome linearis. (J. E. S.)	Grewia affinis. (J. E. S.)
Cadaba heterotricha. (J. E. S.)	„ rigida. (J. E. S.)
Melbania sidæfolia.. (J. E. S.)	„ salicifolia. (J. E. S.)
Balsamodendron pubescens. (J. E. S.)	Cynoctonum saxatile. (J. E. S.)
Cucumis amarus. (J. E. S.)	Acacia rupestris. (J. E. S.)
Heliotropium ophioglossa. (J. E. S.)	Pilogyne Cerasiformis. (J. E. S.)
Limeum Indicum. (J. E. S.)	Sericostoma pauciflora. (J. E. S.)
Scævola uvifera. (J. E. S.)	Blepharis Scindensis. (R. W.)
Eampylanthus junceus. (Edge.)	

EGYPT AND NUBIA.

A great number of the plants which grow in Arabia, and are enumerated as above, *also* grow in Egypt.

Cassia elongata. (Lem.)	Crotularia Burhia. (Ham.)
Diplochonium Indicum. (J. E. S.)	Chaseanum affine. (J. E. S.)
Grangea Ægyptiaca. (D. C.)	Trianthema micrantha. (J. E. S.)
Didesmus panduræformis. (J. E. S.)	Heliotropium Niloticum. (A. D. C.)

AFGHANISTAN.

Monsonia Lauriana. (J. E. S.)	Antirrhinum glaucum. (J. E. S.)
Chamærops Ritchiana. (Griff.)	Statice. (Sp. indet.)
Plantago Ispaghula. (Rox.)	Malva. (Do.)
Gibsonia conferta. (J. E. S.)	Solanacea. (Do.)

This list will be much extended when the Hill Vegetation of Sind is studied.

PUNJAUB.

Cleome ruta. (Jacq.)	Leptadenia Jacquemontiana. (Dec.)
Ranunculus sceleratus. (L.)	Gisekia molluginoides. (R. W.)
Rumex conglomeratus. (Murray.)	Peganum harmala. (L.)
Capparis aphylla. (Rox.)	Periploca aphylla. (Dec.)
Cassia elongata. (Lem.)	Crotularia Burhia. (Ham.)
Salvadora Persica. (L.)	Cassia obovata. (Coll.)
Salvadora Indica. (Royle.)	Potentilla supina. (L.)
Trianthema intermedia. (J. E. S.)	Farsetia. (Sp.)
Populus Euphratica. (Dec.)	These plants, with several Compositæ convolvulaceæ, &c. are found along the Euphrates.
Salsola. (Several sp.)	
Sueda. (Sp. indet.)	
Atriplex. (Sp. indet.)	

INDIA.

List of One Hundred Common Plants, found over a great part of India, and also abundantly in Sind.

Elatine æstivosa.
Gynandropsis pentaphylla.
Abutilon Indicum.
,, tomentosum.
Sida alba.
Pavonia Zeylanica.
Gypsophila vaccaria.
Cardiospermum helicabulum.
Corchorus tridens.
,, acutangulus.
,, trilocularis.
,, fascicularis.
Triumpetta rotundifolia.
Tribulus lanuginosus.
Fagonia mysurensis.
Portulaca meridiana.
,, oleracea.
,, tuberosa.
Ammaunia vesicatoria.
Luffa amara.
Lactuca sannentosa.
Nereum odorum.
Calotropis Hamiltonii.
Cacculux villosus.
Nymphæa pubescens.
Nelumbium speciosum.
Argemone Mexicana.
Mimosa rubrecaulia.
Cassia sophera.
Tamarindus Indica.
Guilandina Bonduc.
Indigofera paucifolia.
,, cordifolia.
Prosopis spicigera.
Acacia Arabica.
,, farnesiana.
Zizyphus jujuba.
Glinus lotoides.
Polycarpæa spaducea.
Trianthema obcordata.
Coccinea Indica.
Citrullus colocynthus.
Mukia Scabrilla.
Achmandra epigœa.
Xanthium Indicum.
Eclipta prostrata.
Sarcostemma esculentum.
Oxystelma esculentum.
Linaria ramosissima.
Stemodia ruderalis.
Striga orabanchioides.
Physalis somnifera.
Solanum Jacquinii.
,, trilobatum.
,, incertum.
,, Indicum.
Trichodesma Indicum.
Justicia bicaliculata.
,, repens.
Boerhaavia procumbens.
Celosia argentea.
Aerna lunata.
Desmochæta lappacea.
Achyranthes alternifolia.
,, aspera.
Alternanthera sessispis.
Phœnix sylvestris.
Cyperus pigmæus.
Croton plicatum.
Amaranthus tenuifolius.
Dæmia extensa.
Cucumis pubescens.
Datura alba.
Zatalas pentaphylla.
Ipomæa pes capræ.
,, pes tigridis.
,, pilosa.
,, reptans.
Cressa Indica.
Colonyction nuricatum.
Pharbitis nil.
Heliotropium supinum.
Coldenia procumbens.
Ocinum basilicum.
Leneas. (Sp.)
Zapania nodiflora.
Aristolochia bracteata.
Euphorbia nereifolia.
Phyllanthus Niruri.
,, multiflorus.
,, Madraspatensis.
Caulinea Indica.
Commelina vulgaris.
Typha Elephantina.
Marsilea quadrifolia.
Rhynchosia nuda.
Cassia occidentalis.
,, tora.
Tamarix Diœca.
Peplidium humifusum.

USES NOTICED IN THE FOLLOWING PAGES OF THE UNDERMENTIONED WILD PLANTS, IN MEDICINE, THE ARTS, AND DOMESTIC ECONOMY.

I.—Timber Trees.
II.—Plants used for Cordage, Mats, and Baskets.
III.—Dye Plants.
IV.—Gums and Gum-Resins.
V.—Plants used in Tanning.
VI.—Edible Plants.
„ Edible Fruits, &c.
VII.—Drugs.
VIII.—Plants yielding Soda.
IX.—Fodder for Camels.
X.—Plants used in Distillation.

I.

TIMBER TREES.

Scientific Name.	Sindee.	Remarks.
Acacia Arabica. (Wild.)	ببر Bubbur.	The principal wood in the Shikargahs; grows very fine.
Populus Euphratica. (Dec.)	بهن Balum. بان Ban.	Much used in turning. The lacquered Hyderabad boxes are made of it.
Dalbergia sissoo. (Rox.)	تالي Talee.	The finest wood in Sind; grows very large in the Larkhana and Sehwan districts.
Albizzia lebbee. (Benth.)	سري Suree.	Has a fine dark heart-wood.
.....	کهو Khow.	The most remarkable wood in Sind; grows in the hill country, and is used for making the beautiful and strong Native combs; would succeed for wood-engraving, and for making mathematical instruments.
Tamarix Orientalis. (Forsk.)	گز Guz. گزلو Guz-lau. آسري Asree.	Grows on the hills of Sind; height 20 to 25 feet, with a large trunk. Timber good; yields the Tamarisk galls extensively used in calico-dyeing, and medicine.
Tamarix diæea. (Mox.)	لئي Lyee.	Grows in the salt and sandy plains and beds of rivers. Yields the Makee, or Tamarisk Manna. Is the chief firewood in Kurachee, and supplies a good part of the fuel for the river steamers.
Capparis aphylla. (Rox.)	کرر Kirrur. کریل Kureel.	Though generally a bush, yet grows into a small tree, used in carpentry.
Acacia farnesiana (Wild & Benth.).	باور Baver.	Grows very fine in Sind.
Prosopis spicigera. (L.)	Kemdo.	
Avicennia tomentosa. (L.)	تمر Timmer.	Grows to 25 feet.
Ceriops candolleana. (Arn.)	چوري Chowree. کرري Kirree.	Used for building boats and barges, and especially useful for the knees.

Scientific Name.	Sindee.	Remarks.
Tamarindus Indica. (L.)	آمري Amree.	Wild and cultivated ; grows very fine, and wood is much used.
Azadirachta Indica (Ad. Juss.)	نم Nim.	Rafters and beams.
.....	لوهيرو Loheero.	Grows in the hills. An extremely heavy wood ; grows to a considerable size ; much used.
Cordia latifolia. (L.)	گيدوري Gédooree.	Tough wood ; much used.
Cordia myxa. (L.)	ليسوري Lésooree.	
Cordia Rothii. (R. & S.)	لیار Liyar.	
Zizyphus vulgaris. (L.)	بير Ber.	Grow large.
Zizyphus jujuba. (L.)	بيرجانگري Ber jangree.	

II.

CORDAGE, MATS, AND BASKETS.

Scientific Name.	Sindee.	Remarks.
Typha elephantina. (Rox.)	پن Pun.	Indian Bullrush ; used for ropes, mats, and baskets ; also for making rude boats (Tinho ترهو) ; used to cross the Indus during the inundation. From the pollen of this plant is made the Boor, Booree, or Booratoo, much eaten by the Natives.
Chamærops Ritchiana. (Griff.)	ڦيس Pfees.	A dwarf Palm, whose leaves, called Pfurah ڦرو are much used both here and in Afghanistan, more in manufacturing ropes, twine, sandals, mats, and baskets of all kinds.
Crotularia Burhia. (Ham.)	درنو Drunnoo.	Makes good twine, and small ropes.
Leptadenia Jacquemontiana. (Dec.)	ڪپ Kip.	Much used for making ropes to bring up water from wells, for Persian wheels, and Moats ; water does not rot it.

Scientific Name.	Sindee.	Remarks.
Arundo karka?	سر Sur.	Its reeds are extensively used for chairs and baskets, and its flowering stem is beaten into a fibrous substance, from which very *soft* rope is made; much used by boatmen in tracking.
Calotropis Hamiltonii.(Wight.)	اک Uk.	The fibres of this plant are much used for nets, and the smaller kinds of ropes.

III.

DYE PLANTS.

Scientific Name.	Sindee.	Remarks.
TamarixOrientalis. (Forsk).	ساکن Sakem. Name of *Galls.*	The galls from this plant are much used in dyeing calicos, instead of myrobalans.
Acacia Arabica. (Wild.)	ببر Bubbur.	Bark used to dye reddish brown.
.....	کھیرو Khaero.	Yields the Khayree chips, used in dyeing red; grows in hills.
Melia azadirach. (L.)	نم Nim.	Bark used to dye red.
.....	فارہ Pfārh.	Grows in the hills; bark used to dye yellow.

Besides these are some dye-woods, which come from the hilly country about Khelat, among which is a beautiful yellow-wooded Berberry. Lac is found abundantly in Sind, and of good quality.

IV.

GUMS AND GUM-RESINS.

Scientific Name.	Sindee.	Remarks.
Balsamodendron Roxburghii. (Arn.)	گگر Guggur.	Bdellium of the Bible. Yields the Googul gum-resin, sold in England as East Indian Myrrh. (On the Botanical characters of the tree, uses of the gum-resin, &c., see a notice in the forthcoming number of the "Bom. Asiatic Society's Transactions.")

Scientific Name.	Sindee.	Remarks.
Acacia Arabica. (Wild.)	ببر Bubbur.	All yield Gum Arabic of an inferior quality, used in medicine, calico-printing, iuk-making, paper-making, &c.
Acacia rupestris. (J. E. S.)	کهور Khor.	
?.....	کهونبت Khoonbut.	
?.....	کهیرو Khaero.	
Moringa ptereosperma aptera. (Gatu.)	سوانجرہ Swanjrah.	Horse Radish tree, *wild* and cultivated; yields the red Mocheris gum sold in the Sind bazars.
Butea frondosa. (L.)	کیصو پهل Késoo phul, name of *flowers*, used in dyeing.	Yields the Kumur Kus, which much resembles Kino.

V.

TANNING.

Scientific Name.	Sindee.	Remarks.
Ceriops candolleana. (Arn.)	چوری Chowree.	Much used at Kurachee, and the skins are carried to Arabia by the Arab ships, and to Afghanistan by the Kafilas.
Rhizophora mucronata. (Lam.)	کنرو Kunro.	
Acacia Arabica. (Wild.)	ببر Bubbur.	Bark much used.
.....	کهیرو Khaero.	Yields the Khayree کهیری chips, used in dyeing calicos, and in tanning. It may be the Catechu; but I have not seen it.

VI.

EDIBLE PLANTS.

Scientific Name.	Sindee.	Remarks.
1, *Green parts.*		
Nelumbium speciosum. (Wild.)	پبن Pubbun.	Water Lilies; flower and leaf-stalks.
Nymphæa pubescens (wild).	کوني Koonee, or پوني Poonee.	

Scientific Name.	Sindee.	Remarks.
Portulacæ oleracea. (L.)	لونک Lōnk.	Purselane, Asag.
Chenopodium album. (L.)	جهل Jhil.	Goosefoot, Asag.
Ipomæa reptans. (Poir.)	نرو Naro.	Stem and leaf-stalks.
2, *Roots.*		
Nymphæa pubescens. (Wild.)	(For name of plant see preceding page.) لورهي Lorhee. Name of root.	The root; tubers of the Nymphæa are eaten, both raw, and roasted and boiled. They have a flavour between potatoes and chesnuts.
Nelumbium speciosum. (Wild.)	(For name of plant see above.)	The Rhizome of the Nelumbium is sold in every bazar in Sind.
	بهه Beh. Name of root.	Besides these are other roots (Dhaneuro, Singho, &c.), chiefly from Cyperaceæ.

Obs.—The Lorheon and the Beh are of great importance. They produce a considerable revenue, chiefly collected about Lake Munchur, and they are much esteemed by the Natives. They are enumerated in an old Sind Prophecy, together with *Fish*, as the three things which the opening of a particular line of canal would produce to the inhabitants along its banks.

3, *Wild Fruits.*		
Cordia Robhii. (R. and S.)	لیار Liyar.	
Grewia affinis (J. E. S.)	گانگي Gangee.	Four species of Grewia, which are very palatable, and might be improved by cultivation; one is called by the Natives the male of the three others.
„ salicifolia (J. E. S.)		
„ rigida. (J. E. S.)		
Grewia —— ?..	گانگو Gango.	
Tamarindus Indica. (L.)	آمری Amree.	Truly wild in the hills; fruit called Gidamree گدامري
Capparisaphylla. (Rox.)	کرر Kirrur.	Fruits much eaten; when unripe called ڈورو Doro, when ripe پکو Pukko. The flowers are also eaten, and called سپی Pusse.

Scientific Name.	Sindee.	Remarks.
Capparis Decaisnæi.	پانيرو Paneero.	Fruit pickled; its buds would make an admirable succedaneum for the Mediterranean capers.
Momordica balsaminæ. (L.)	کريلوجانگرو Kurelo Jangro.	Grows wild all over Sind; berry like gourd; eaten in stews, &c.
Salvadora Persica. (L.)	کبر Kubur, or کهاری جار Khareedjar.	The fruit of all these is called Peroo پيرون with some prefix. That of Salvadora Persica is called Kharee Peroo کهاری پيرون that of the Salvadora Indica is called Meetho Peroo; that of of the Solanum, Ka(n) Peroo; that of the Phyllanthus, Peeka Peroo.
Salvadora Indica. (Royle.)	سادوی جار Sadneedjar.	
Solanum incertum. (Dun.)	کان پيرون Ka(n) peroo(n)	
Phyllanthus multifloris. (L.)	کاموهي Kamohee.	
Coccinea Indica. (W. and A.)	گولارو Golaro.	Fruit, called Gol گول eaten in stews.

Besides these are the Ranga and Khoonbhut, which grow in the hills; and the Julgozur and Gwen, which grow near Khelat.

4, *Seeds, and Seed-like Fruits.*		
Nymphæa pubescens. (Wild.)	Name of plant Koonee.	Seeds, called Napo ناپو much eaten.
Nelumbium speciosum. (Wild.)	Name of plant Pubbun.	Achenia or nuts, called Pabooro پابورو and sold in all bazars.
Cressa Indica. (L.)	گون Goon.	Seeds ground, and the flour made into cakes; pure, or mixed with other flour.
Achyranthes lappaca.	بهرٹ Bhurt (in East Sind). بهچتي Bahchutty (in Lower Sind).	
.....	ساوری Sawree.	
5, *Miscellaneous.*		
Typha elephantina. (Rox.)	پن Pun.	Produces the Boor, Booree, or *Booratoo*, which is the pollen of the plant; made up with water into cakes, and much eaten.
Tamarix diæca. (Rox.)	لئي Lyee.	The Makee or Tamarisk Manna, used in confectionery, is secreted by this plant in the cold weather.

VII.

DRUGS.

Only those are enumerated which grow wild in Sind; the very numerous Punjaub and Khorasan medicines are omitted.

Bazar Name.	Scientific Name.	Remarks.
1, *Purgatives.*		
ایریو Ayreo.	Probably Aloe Socotrina.	Aloes; name of plant Put Khwar.
سنا مکي Suna Mukee.	Cassia obovata. (Coll.) Cassia elongata. (Lam.)	Senna.
تروجوپار Tru-jo-par. تروجو گوشت Tru-jo-gosht.	Cucumis colocynthus. (L.)	Root and fruit used. Colocynth.
دھاتورو Dhatoora.	Datura alba....	Thorn-Apple.
2, *Emetics.*		
پنیرجوفوٹہ Puneer-jo-fotah.	Nat. family Solanaceæ.	Fresh berry.
گوساٹو Gosato. کرمت Kirmut.	Cucumis amarus. (J. E. S.)	A small bitter gourd; very powerful.
3, *Diuretics.*		
گوکھرو Gokhroo.	Tribulus lanuginosus. (L.)	Dry fruit. The plant is called Trikundree, and the fruit has that name also.
ترکندری Trikundree.	„ pentandrus. (Del.) „ alatus. (Del.)	
پالک جوبج Paluk bij.	Spinachia tetrandra. (Rox.)	Fruit Spinage.
گدروجوبج Gidroo bij.	Cucumis melo. (L.)	Melon seeds.
آھوبیر Ahūbēr.	Juniperus communis. (L.)	Fruit sold in all bazars; Juniper grows on the hills.
4, *Tonics and Febrifuges.*		
ماميچہ Mameecha.	Slevogtia Orientalis. (Gries.)	Nat. family Gentianacea; used in fever.

Bazar Name.	Scientific Name.	Remarks.
نم Nim. / نموری Nimooree.	Azadirachta Indica. (Ad. Jass.)	Leaves and bark. / Dried fruit. — Fever, &c.
هشورک Hishwork.	....	Very bitter roots of an Acanthaceous plant, which grows on the hills.
ترخ Tirkh.	....	Flowers of a hill plant ; very bitter, and used in fever.
مرو Murwo.	....	Ditto ditto ditto.
کربت Kirbut.	Guilandina Bonduc.	Seed used in fever.
حرمارو Hurmaro.	Ruta hurmala. (L.)	Cocei used.
5, *Demulcents.*		
مودهیری Moodheree.	Corchorus humilis. (Munro.)	Very mucilaginous.
صور Mour.	Labiatæ	Mucilaginous seed.
نازبو بیج Nazbo bij.	Ocimum basilicum. (L.)	Ditto.
اِسپنگر Ispungur.	Plantago Ispaghula. (Rox.)	Ditto.
لیسورو Lesooroo.	Cordia myxa.(L.)	Dried fruits ; small sepistans.
گیدورو Gedooro.	Cordia latifolia. (L.)	Ditto ; greater sepistans.
عناب Unab.	Zizyphus —— ?	A sweet jujube, from the hills.
کاسني Kasnee.	Cichorium intybus. (L.)	Seed-like fruit.
6, *Cooling Medicines.*		
سهار Sihar. / سیور Sewur.	Rhazya stricta. (Dec.)	Leaves.
نیلوفر Neelofir.	Nelumbium speciosum. (Wild.)	Dried flowers.
.....	Nymphæa pubescens. (Wild.)	Dried flowers.

Bazar Name.	Scientific Name.	Remarks.	
کاموهی جوپن Kamohee-jo-pun.	Phyllanthus multiflorus. (Rox.)	Leaves.	
نرو Nuro.	Three undetermined species of Grantea.	Leaves.	All these are supposed to have cooling properties, and, according to the Arabian system of medicine, *must* be good against all disorders arising from heat (external and internal). They are much used as preventives in the hot weather, to keep the system cool, and ward off disorders incident to that season.
نری Nuree.			
کولمیر Kolmeer.			
گاوزبان Gauzaban.	All sold in the Kurachee bazar is from Trichodesma Indicum, Heliotropium ophyoglossa, & Heliophytum erosum,—all in Boraginaceæ.	Leaves, &c.	
دراماهو Drammaho.	Fagonia mysurensis. (Roth.)	Leaves and twigs.	
.....	„ Arabica. (L.)		
مورپن Morpuna.	.....	Leaves.	
داروبج Daroo bij.	Punica granatum.	Seeds.	
کھوپن Khow puṇa.	.....	Leaves.	
7, *Heating Medicines.*			
گوگل Googul.	Balsamodendron Roxburghii. (Arn.)	Gum-resin.	
گگر Guggur.			
اهریو Ahreo.	Lepidium sativum. (L.)	Seeds and herb.	
دھرر Dhurrar.	Cleome moschata. (J. E. S.)	Herb.	Being hot, are given for all disorders arising from cold; also as preventives. Used chiefly in the cold season. Are much given to horses, camels, oxen, &c.
کاتھوری Kathooree.			
آھربج Ahur bij.	Sinapis ramosa. (Rox.)	Seed.	
جانبوبج Jambo bij.	Ernea sativa. (D. C.)	Seed.	
سرےبج Suray bij.	Sinapis glauca. (Rox.)	Seed.	
8, *Carminative.*			
پنیرجے فوتے Puneer-ja-fotah.	Nat. Family Solanaceæ.	Dried berries.	

Bazar Name.	Scientific Name.	Remarks.
قودنه Pfoodnah.	Mentha arvensis (L.), and viridis. (L.)	Grow in the hills.
جان Jan. ول جان Wall Jan. دھانا Dhana. ودف Wudf. جیرو Jeero.	Well-known Umbelliferous seeds, Coriander, Cummin, Fennel, Aniseed, &c.	
9, *Anthelmintics.*		
داروجوکل Daroo-jo-kul	Punica granatum. (L.)	Pomegranate bark; from root.
توت جوکل Toot-jo-kul.	Morus alba. (L.)	Mulberry bark, from root.
پیتپاپر Peet papur.	Butea frondosa. (L.)	Seed.

Obs.—The juice of Aristolochia bracteola (ناگیل Nagēl) is used against maggots in wounds, and against snake-bites.

10, *Astringents.*		
ساکن Sakun.	Tamarix Orientalis. (Forsk.)	Galls.
کمرکس Kumur kus.	Butea frondosa. (L.)	Resembles Kino.
جمون Jumoo(n).	Jambosa vulgaris. (D. C.)	Bark.
موچرس Mocheris.	Moringa ptereosperma aptera.	Gæta (gum).

Obs.—The walnut bark is brought into Sind from Khelat and Muscat in large quantities, and is masticated by women to preserve and redden their gums. It is called Musag مساگه

11, *Miscellaneous.*		
سونپات Sonpat.	Antirhinum glaucum. (J. E. S.)	Powdered leaves snuffed up for bleeding of the nose.
ادیرےجے دینے Aderay-ja-denay.	Solanum Jacquinii. (Wild.)	Used in cough, and in fumigation against decayed teeth.
کنرو Kinro.	Gynandropsis pentaphylla. (D. C.)	Used in oil, against crabs and lice.

Bazar Name.	Scientific Name.	Remarks.
واهو Waho.	Trianthema intermedium. (J. E. S.)	Used as an abortifacient and preventive.
زامر Zamir.	Cocculus villosus. (D. C.)	Pains in head.
چون Chown.	Cassia absus. (L.)	Seeds used (as all over the Eastern World) for all inflammation of the eyes. The kernels are put into the inflamed eye, made up with water.
پانیرو Paneero.	Capparis Decaisnei.	Leaves epispastic.

VIII.

PLANTS YIELDING SODA.

Scientific Name.	Sindee.	Remarks.
Salsola. (Sp. indet.)	کھاری لانی Kharee lanee.	Yields the well-known Sujjee Khar by incineration. This impure carbonate of soda is extensively used in soap-making, calico-dyeing, washing, &c. Similar plants yield soda all over the world.
Salsola. (Sp. indet.)	کونتی لانی Kontee lanee.	Yields the Kauree Khar, an inferior article, but used for the same purposes.

IX.

CAMEL FODDER PLANTS.

The Camel rejects but the few following plants :—

Sindee.		Scientific Name.
سیور Sēwur.	سیار Sihar.	Khazya stricta. (Dec.)
	پنیر Puneer.	An undetermined Solanaceous plant.
	اک Uk.	Calotropia Hamiltonii. (Wight.)
	تھوھر Thuhur.	Euphorbia nereifolia. (L.)

It is worthy of remark that the camel eats the Nereum odorum (ذور Zowr جور Jowr), a remarkably poisonous plant, which in nearly every case proves fatal to him, as troops during the march have often found, to their great inconvenience. It eats all of the following greedily :—

Sindee.	Remarks.	Scientific Name.
اوت لانی اشک‌لانی Aout lanee, or Ushuk lanee.	.....	Sueda. (Sp. indet.)
متهو لانی سمودرلانی Mittho lanee, or Samundur lanee.	.....	Ditto.
گهرو لانی Gahro lanee.	Called also Lano لانو and Lana لانا	Salsola. (Sp. indet.)
کهاری لانی Kharee lanee.	.....	Ditto.
کوتی لانی Kontee lanee.	.....	Ditto.
پت لانی گدهالاني Put lanee, or Gudha lanee.	Are chiefly salt plants.	Xygophyllum simplex. (L.)
چهو تی لانی فصر لانی Chotee lanee, or Fysur lanee.	.....	Trianthema micrantha. (J.E.S.)

Sindee.	Scientific Name.
جهل Jhil.	Indigofera pauciflora. (Used for Hindoo tooth-brushes.)
کپ Kip.	Leptadenia Jacquemontiana. (Dec.)
ببر Bubbur.	Acacia Arabica. (Wild.)
حاجیرو Hajeero.	Mimosa tubucaulis. (Lam.)
درنو Drunoo.	Crotularia Burhia. (Ham.)
باور Baver.	Acacia farnesiana. (Wild.)
کندو Kundo.	Prosopis spicigera. (L.)
مودهیری Moodheree.	Corchorus humilis. (Munro.)
ٹمر Timmer.	Avicennia tomentosa. (L.)
چار Chawr.	Agiceras majus. (Gatu.)
گون Goon.	Cressa Indica. (Retz.)
وکن Wukkun.	Zapania nodiflora. (L.)

Sindee.	Scientific Name.	
کبر Kuber, or کھاری جار Kharee djar. سادوی جار Saduee djar.	Salvadora Persica. (L.) Salvadora Indica. (Royle.)	Musulman tooth-brush trees.
تک Tik.	Eclipta prostrata. (Rox.)	
کوتک Kotuk.	Glinus lotoides. (L.)	
ملیرو Mulleero.	Amaranthus tenuifolius. (Rox.)	
کاندیرو Kandero.	Alhagi Maurorum. (Town.)	
واهو Waho.	Trianthema intermedia. (J. E. S.)	
جری Juree.	Atriplex. (Sp. indet.)	

X.

PLANTS USED IN DISTILLATION.

The bark of the Acacia Arabica is always used in making the Native spirits, as in Upper India the bark of the Acacia ferruginea, and in Guzerat the bark of the Acacia leucophlæa. The distiller's receipts are curious enough. Goor or Sind dates are always added to the Acacia bark, with the addition of from thirty to forty other ingredients, which are the most nasty and disgusting bazar drugs,—as Cubebs, Myrobalans, Pellitory, Asgund, Mocheris, &c., mixed with spices, as Cinnamon, Cloves, Ginger, Mace, Nutmeg, &c.,—the whole making a most abominable compound.

BRIEF NOTES RELATIVE TO ARTICLES OF CULTIVATION SUITABLE TO SIND, TO WHICH ATTENTION MIGHT BE DIRECTED WITH ADVANTAGE.

Details of cultivation, and suggestions for improvement, should be based upon the following facts:—

Sind is an extra-tropical country.

1. The average temperature of whose summer months rises to 95° Fahr., and whose winter months have an average temperature of 60°.

The highest temperature of the hottest days in summer frequently rises to 110°; less frequently to 120°. The lowest temperature of the night in winter is a few degrees below freezing (32°); and, *what is more important with regard to vegetation*, the temperature of a winter day (average) ranges between 80° and 40°.

Many places have occasionally as high a temperature, but none such a continuance of hot weather (owing to the deficiency of rain), whence arises the high summer average.

The winter of Algiers, with an average summer temperature higher than any recorded!

The above remarks do not apply to Kurachee, whose temperature is kept more uniform by the sea, and whose meteorology (though extremely interesting in a medical and sanatory point of view) is not valuable in connection with cultivation on a large scale.

They apply to Sind, from Hyderabad to Shikarpoor, including the fertile districts of Larkhana and Sehwan, and those parts which are supplied with water from the Indus, and its branches.

2. Which is almost out of the range of the monsoon.

3. Whose overflowing river makes up, to a certain extent, for the deficiency of rain above noted.

4. Whose soil is plastic clay, most strongly impregnated with salt; quickly covered with the fertile warp of a river; remarkably charged with fertilising matter when (naturally or by canals) it is brought within its influence, and as quickly reduced to a barren sand when the river is diverted, or never brought near it.

In many parts, also, are rocky formations, chiefly of carbonate of lime.

5. Where the Date tree from the equator northwards first ripens, and brings its fruit to perfection in any quantity.

6. Where the Apple begins to produce eatable fruit with little attention,—a transition from the difficulty of obtaining that fruit in India, to the ease and perfection with which it is cultivated in Khorasan.

7. Where that remarkable family of plants the Balsam trees first

begins, from the equator northwards, to yield a copious supply of gum-resin, useful in the arts and in medicine.

8. Where the Pomegranate is capable of bearing a fine and delicious fruit.

9. And yet the Mango does not fall off in excellence.

10. Where in the heat of summer tropical grains and fruits are cultivated, while in the cold and bracing winter extra-tropical and European grains, pulse and vegetables, may be grown with no perceptible deterioration.

11. Where the indigenous vegetation is one-third Arabian and Egyptian, and two-thirds Indian.

The following are a few of the articles to which attention might be directed :—

Names of Articles.	Considerations on which founded.
Aloes	Climate, and especially affinity to Socotra, as shown in the similar plants found in both countries. Moreover, because it grows wild in Sind, and excellent aloes is already made from it.
Dragon's Blood Tree	Climate, and affinity to Socotra, where this plant grows wild.
Flax.....	The peculiar soil and climate of Sind would be very suitable to the production of good fibre from this plant.
Egyptian Cotton.....	Similarity in soil and climate. Moreover, Cotton succeeds in proportion to the quantity of lime in the soil, as proceeds by analysis of soil and plant. This is found all over Sind, and a wild Cotton (Gossypium obtusifolium, Rox.) is found perfectly wild all over the rocky ground in Sind.
Egyptian Wheat.....	Similarity in soil and climate. This wheat thrives in the poorest soil.
Olive	Cultivated all over Egypt and Syria, whose climate, soil, and productions resemble those of Sind. Moreover, it delights in a limestone soil. It grows wild on the higher hills of Beloochistan.
Carob Tree	Grows admirably in the driest parts of Egypt, Syria, and Arabia, and is one of the most important productions of these countries. It yields food to man, and fodder to beasts, with but little attention, in the most barren situations. It has been tried in Tropical India,

Names of Articles.	Considerations on which founded.
	but it has not succeeded, *because it requires a certain amount of cold* during a part of the year, and will not bear the constant stimulus of tropical heat. It is not a tropical plant. Whole forests should be planted with it, and every well should have one or more standing by its side.
Gum Arabic Trees. (Acacia Nilotica, and Seyal.)	Climate and soil, and the fact that the Babool (a nearly allied species) flourishes admirably in Sind, and produces, with two or three other trees of the same genus. A considerable amount of gum sold in the bazar.
Manilla Gram. (Arachis Hypojœa.)	Not yet introduced into Sind, where it would thrive.
Myrrh, Frankincense, Euphorbium, Galbanum, Ammoniacum, Sagaporium, Assafœtida, Tragacanth, Mastich.	The climate of Sind (especially the higher parts of it) seems particularly suited to the development of the odoriferous and fœtid gum-resins which require a certain amount of cold. This is confirmed by the Googul tree yielding abundance of that gum-resin in Sind, by the occurrence of three kinds of Assafœtida, and a kind of Mastich in the elevated Beloochistan Hills, and by the Tamarisk yielding manna all over Sind, which Dr. Royle and other authorities deny ever occur in India, or out of Arabia and Persia.
Date Palm	Should be especially attended to. It has already obtained a certain degree of perfection in Sind, and about Khyrpoor and Sukkur yields excellent dates. Good varieties might be obtained, and attention directed to its culture. Much barren land might thus be covered with lofty trees of long duration, from which collateral advantages would follow.
Liquorice Plant	Cultivated in Khorasan, and would succeed well. It is much used in substance and extract by the Natives.
Rhubarb	Grows naturally in a very loose, sandy soil. Plants of the same natural family begin to be more abundant in Sind than in Tropical India.
Indigo	Now left to Native enterprise, which will never produce a good article. If European method and intelligence were brought to bear upon the culture, the result would be as it was half a century ago in Bengal.
Shiraz and Latafia Tobacco..	These fine Tobaccos would certainly succeed admirably

Names of Articles.	Considerations on which founded.
	in the congenial climate of Sind. Sind produces much Tobacco, but the rude mode of sweating spoils the article.
Hemp	Grows well in Sind, and if it ever should be found advantageous (politically or financially) to grow hemp for its fibre, then Sind would be a very proper climate.
All the most valuable Clovers, Lucerns, Lupins, Peas, Vetches, Tares, Mustards, and Rapes.	Would succeed in the winter months. Egypt and Syria, and the South of Europe, have many such whose congeners, and in some cases the identical plants, are cultivated already.
Madder	Would grow well, as it does in Mooltan and the Punjaub.
Lac	Specimens of the Sind Lac might be sent to England, to see if of good quality. Any quantity could be supplied.
Tanning Plants	Nothing is more desired in England than a substitute for Oak bark, whose supply is gradually failing. In the Mangrove forests on the mouths of the Indus, and in the large Babool forests on the banks of the river, Sind has abundance of tanning barks, now wasted. The barks themselves could not be sent with profit, owing to their bulk; but it would be extremely easy to send extracts of them, made in the country. In 1831, 40,000 cwt. of Acacia extract was shipped for England at Hobart Town, and it forms a considerable trade. The Mangrove extract would be well worth a trial; it performs its office in half the time of Oak bark. The extracts must be made in earthenware vessels, as iron utensils communicate a principle which makes leather brittle, and coloured. Both these barks are much used by the tanners of Sind.

BRIEF NOTES

RELATIVE TO THE

DIVISION OF TIME, AND ARTICLES OF CULTIVATION IN SIND;

TO WHICH ARE APPENDED

REMARKS ON THE MODES OF INTOXICATION IN THAT PROVINCE.

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Submitted to Government on the 2nd March 1848.

DIVISION OF TIME, AND ARTICLES OF CULTIVATION, IN SIND.

DIVISION OF TIME.

As in India, so in Sind generally, we find two kinds of years, viz :—

1*st*, the Moslem (Arabic) Hijree, or Lunar Year.

2*nd*, the Hindoo, or Luni-solar.

The former requires no description, being the most simple of all divisions of time, and well known as the year used by all Musulman nations.

The latter is a more complicated arrangement.

The months are calculated according to the revolutions of the moon; but the seasons are rendered subservient to both the solar and the lunar year. For this purpose, an embolismal month is added to one of the three seasons successively, every third year: at such times the season into which the intercalary month is inserted contains five instead of four lunar months.

The ancient Hindoos had six Ritu, or seasons, viz :—

1, Hemanta, "Winter" months.
2, Shíshíra, "Freezing" months.
3, Wasant, "Spring" months.
4, Gríshina, "Hot" months.
5, Warsha, "Rainy" months.
6, Sharad, "Cold" months.

In Modern India the year is portioned out into three seasons of four months each, viz :—

1*st*, the cold season, or Winter.

2*nd*, the hot season, or Summer.

3*rd*, the rainy season, or Monsoon.

The Sindees, however, reckon only two seasons, viz :—

1*st*, Siyaro; or the cold season, six months in duration, from Assú to Phaggun, included.

2*nd*, Unhálo, or Arhár, the hot season, which contains the rest of the months.

In India, moreover, the Adhikmása or embolismal month is always intercalated during what we should call the summer, or between March and September; and when two months of the same name occur, the first is called Prathama, and the second Dwitiya, to distinguish them from each other.

But in Sind the embolism does not appear to be confined to any particular time.

Astronomical calculations are conducted both by Sarsudh and Pokarná Bramins. Their almanacs are made up every year, but not much used by the people in general, as the Priest prefers writing them in Sanscrit, in order to render them unintelligible to the vulgar, and to constitute himself the sole explainer of their contents.

The era usually met with in official and revenue papers in Sind is the Fuslee; but in books, inscriptions, and Moslem compositions generally, the Hijree date is preferred. The Hindoos in Sind use the Sambat, or Vikramáditya's era, which begins with the death of that monarch at Ujjam, A. C. 57. They are of course aware of the existence of the several Hindoo Yoga or periods, and know that the present is the Kali Yoga (called by them the Kal-Jugu), although they rarely if ever assume its commencement as an era.

The following comparison of the Sindee with the Sanscrit names of the months will prove that the former are easily derivable from the latter:—

Sindee.	Sanscrit.	English.
1*st*.—Kattí.	Kártika.	October-November.
2*nd*.—Nahrí.	Márgashirsha.	November-December.
3*rd*.—Poh.	Pansha.	December-January.
4*th*.—Mágh.	Mágha.	January-February.
5*th*.—Phaggun.	Phálguna.	February-March.
6*th*.—Chait.	Chaitra.	March-April.
7*th*.—Waishákh.	Waishákha.	April-May.
8*th*.—Jeth.	Jeshtha.	May-June.
9*th*.—Akhár.	Asharha.	June-July.
10*th*.—Sáwan.	Shráwana.	July-August.
11*th*.—Baddo.	Bhadrapadas.	August-September.
12*th*.—Assú.	Ashwina.	September-October.

The Sambat begins on the 1st of Kártika.

The Indian astronomical year commences on the 1st of Chaitra, as does the Shálivâhan era; but this is not in general use in Sind. As regards calculations of eclipses, declinations, &c., and even the commom almanacs, the Bramins throw so much difficulty in the way of research, that we have not hitherto been able to discover anything worth mentioning.

The Hindoo as well as the Arabic week begins with the Sunday; but the days, as in India, are differently named by the Hindoos and Moslems. We append a list of them:—

Hindoo.	Moslem.
1, Artar (Sun's day).	Achár.
2, Sumar (Moon's day).	Súmar.
3, Mangal (Mars' day).	Angaro (firebrand).
4, Budhar (Mercury's day).	Arba (fourth day).
5, Vrispat (Jupiter's day).	Khamís (fifth day).
6, Sukrawár (Venus' day).	Jummo.
7, Chenchar (Saturn's day).	Chanchar, or Chámchar.

The minor divisions of time are,—

1*st.*—Pahar, watches; of which there are eight in our twenty-four hours.

2*nd.*—Ghari, hours; equal to about twenty-four minutes of our time.

3*rd.*—Pal, moments; of which there are sixty in the Ghari.

CROPS IN SIND.

The crops are two in number, viz:—

1*st.*—Rubia: the vernal crop, sown in the autumnal months of Baddo, Assú, and Kattí, brought forward (as in India) by the heavy dews and the cool nights that prevail during the winter, and reaped in the spring about Phaggun and Chait.

2*nd.*—Khareef: the autumnal, sown in the summer months of Jeth, Akhár, and Sáwan, brought forward by the flooding of the river, and cut after the inundation subsides, or about the months of Kattí and Nahrí.

In submitting the following list of grains and other productions, we have only to remark that it is necessarily an incomplete one, and that our means of procuring information are very limited. It is only by travelling about the province, and by making inquiries among the cultivators, that anything like a perfect list could be collected. We hope however that, as a basis for future inquiry, it may be of some little utility.

In the accompanying tables, the first column contains the common Sindee appellation of the different productions, and next to it is the Sindo-Persian synonyme, as used in the province in official and revenue papers. When there is an English name for the production, it is inserted in the third column; or, if none such exist, we give the term generally understood throughout Hindoostan. The fourth column contains the

scientific name of the plant, and in the fifth is the season in which it is cut.

The following is a list of the articles of cultivation which we have enumerated, viz :—

1,	Grains (Gramineæ)	10 kinds.
2,	Pulse (Leguminosæ)	7 „
3,	Oil Seeds	6 „
4,	Greens and Vegetables	11 „
5,	Gourds (Cucurbitaceæ)	10 „
6,	Dye Plants	6 „
7,	Cordage and Clothing	3 „
8,	Tobacco and Sugar	2 „
9,	Intoxicating Plants	3 „
10,	Medicines	4 „
11,	Condiments	5 „
12,	Fruits	21 „
	Total	88 kinds.

We have preferred the Lár to the Siro dialect in the Sindee column, and have generally selected the most popular word. When two terms are given, the reason is that both are equally well known.

A superficial glance at the Persian portion will be sufficient to prove that it is a different dialect from the Persian spoken in Persia: many words are freshly coined ones; a considerable portion is composed of obsolete terms; and not unfrequently a word is perverted from its original meaning. Such as it is, however, it is used throughout Sind and Beloochistan, Mooltan and Buhawulpoor, the Brahooee Country, and the greater part of Khorasan.

ARTICLES OF CULTIVATION IN SIND, PARTICULARS OF WHICH ARE GIVEN IN THE FOLLOWING PAGES.

I.—Grains.
II.—Pulse.
III.—Oil Seeds.
IV.—Vegetables and Greens.
V.—Gourds.
VI.—Dye Plants.
VII.—Clothing and Cordage.
VIII.—Tobacco and Sugar.
IX.—Intoxicating Plants.
X.—Medicines.
XI.—Condiments.
XII.—Fruits.

I.

GRAINS.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
ناگلي Nangulí.	مندوء Mandwah.	Nachnee and Ragee.	Eleusine Coracana. (Gætu).	Khareef.	
جواري Juwárĭ. *s.f.*	جواري Jawárĭ.	Indian Millet; Turkey Millet; Negro Corn.	Sorghum vulgare. (Rands.)	Ditto ...	Kurbee.
ساري Sarí. *s.f.* سار Sárĭ. *s.f.*	شالي Shali.	Rice Paddy	Oryza sativa. (L.)	Ditto ...	Two varieties, white and red: the white is called Súgdá Sí سوگداسی the red is called Sindee; the grain is called Chánwar چانور There are many varieties of this grain, *e. g.* Motiyo, Ganjo, Triminiyim, Kánbrú (red), Sathriyo, Kamod, Ratariyo (white).
کرنگ Kirang^{u}. *s.m.*	گال Gál.	Kungnee	Seta Italica. (R. B.)	Ditto.	
باجهر Bájharĭ. *s.f.*	باجري Bájrí.	Bajree	Penicillaria vulgaris. (Beauv.)	Ditto.	
مکاي Makáí. *s.f.*	باجري Bájrí.	Maise	Zeamays. (L.) ..	Ditto.	
ساو Sáou. *s.m.*	باجري Bájrí.	Sawa and Shamoola.	Panicum frumentaceum. (Rox.)	Ditto.	

کنک Kank[a]. *s. f.*	گندم Gandum.	Wheat	Triticum vulgare. (V. M.)	Rubia. ..	Varieties white and red (Thorí and Panbon). There are many other kinds, as Goji, Tandar, Kodanu. The toasted grains eaten by the people are called Dhani.
گیہ Gíh[un]. *s. m.*					
چینو Chínú. *s. m.*	ارزن Arzan.	Common Millet.	Panicum miliaceum. (L.)	Ditto.	
جو Jau. *s. m.*	جو Jau.	Barley	Hordeum hexastichon. (L.)	Ditto ..	The green barley is called Khoíd; corrupted from the Persian Khavid خوید

Obs.—The straws of these grain-bearing plants, and the green parts of the Pulse, enumerated in the next table, together with Fenugreek, and some other fodders, are given to oxen and horses;—oxen reject few articles. Favourite camels get also various dry and wet fodders, as Kurbee, Fenugreek, Indian Cress, and the green parts of the three Mustard-oil plants; Cotton seeds are given to oxen, and Oil-cake to camels, oxen, and sheep.

II.

PULSE.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
ماھ Máh[i]. *s. f.*	ماش Másh.	Oorud	Phaseolus radiatus. (Rox.)	Khareef.	
چورو Chaunro. *s. m.*	لوبیا Lobiyá.	Chowlee	Dolichos sinensis. (L.)	Ditto.	
ول Wall[u]. *s. m.*	لوبیا Lobiyá.	Wall.....	Lablab vulgaris. (Sari.)	Ditto.	

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
منگه Mung[u.] *s. m.*	منگ Mung. مونگ Múng.	Moong.....	Phaseolus mungo. (Rox.)	Khareef.	
چنو Chano. *s. m.*	نخد Nakhud.	Bengal Gram...	Cicer arietinum. (L.)	Rubia.	
مٹر Matar[u.] *s. m.*	مسنگ Masang.	Chickling Vetch.	Lathyrus sativus. (L.)	Ditto ..	Very extensively cultivated.
مهر Mohar[u.] *s. m.*	عدس Adas.	.....	Phaseolus aconitifolius.	Ditto.	

Obs.—These grains, when split, are called Dál; when ground, the flour is called Atto.

III.

OIL SEEDS.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
پواري جو بج Powárí-jo-bij.	تخم گل معصفر Tukhm-i-Gul-i-muāsfir.	Koosumba; or Safflower Seeds.	Carthamus tinctorius. (L.)	Rubia....	The grain-like fruit of the Saf-flower (commonly called the seed) is often eaten.
جانبو Jámbo.	جانبه Jámbeh.	.....	Eruca sativa. (Lam.)	Ditto....	The green parts of the three Mustard-oil plants are eaten as greens, and used as fodder.
* سرءِ Sarih[i.]	سرشف Sarohaf.	.....	Sinapis glauca. (Rox.)	Ditto....	

اهر Ahur[i.]	خردل Khardal.	Raee	Sinapis ramosa. (Rox.)	Ditto.	
تر Tirr[u.] تل Till[u.]	کنجد Kunjid.	Til, or Ginglee..	Sesamum Indicum. (L.)	Khareef.	Not so easily congealed as cocoanut oil.
هيرن Hérán[u.] *s. m.*	بيدانجير Bed ánjir.	Castor Oil Plant.	Ricinus communis. (L.)	Perennial.	Oil called Heeran-jo-tel, or more generally Arandi-tel (from the Hindoostanee). It is easily congealed.

Obs.—The oil of the Safflower seeds, of the Mustard seeds, and of the Til, is extracted by a wooden pestle, working in a wooden mortar, and driven by oxen and camels. The residuum, or oil-cake, is called Khur, and is universally used for oxen, camels, goats, and sheep. The oil of the Ricinus is extracted by boiling.

The Powárí-jo-bij is also called Khoinbe-jo-bij, Khoinbo being the name of the plant. There is a wild seed which is also called Powárí, but it is of no use.

IV.

VEGETABLES AND GREENS.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
ٿوم Thúm[a.] *s. f.*	سير Sír.	Garlic	Allium sativum. (L.)	Rubia chiefly.	
بصر Basar[u.] *s. f.*	پياز Piyáz.	Onion	Allium cepa. (L.)	Ditto.	
موري Múrí. *s. f.*	ترب Turb.	Radish.....	Raphanus sativus. (L.)	Ditto.	
واگن Wangan[u.] *s. m.*	بادنجان Bádanján. بادنگان Bádangán.	Egg Plant, or Brinjal.	Solanum melongena. (L.)	Ditto.	

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
گجر Gajar[u]. *s. m.*	زردک Zardak.	Carrot	Daucus carota. (L.)	Rubia chiefly.	Called Pittaí Gajar, or Sindee Gajar, to distinguish it from the Sweet Potatoe, which is called Gajar.
گجرلاهوري Gajar[u] Láhorí.	زردک لاهوري Zardak Láhorí.	Sweet Potatoe..	Batatas edulis. (Ch.)	Ditto...	Láhorí, being supposed to have come from the Punjaub.
گوکرو Gokhrú. *s. m.*	شلغم Shalgham.	Turnip	Brassica rapa. (L.)	Ditto.	
چوکو Chúko. *s. m.*	ترشک Turshak.	Country Sorrel.	Rumex vesicarius. (L.)	Ditto.	
پالک Pálak[a]. *f. s.*	اسفناج Isfinág.*	Spinage	Spinachia tetrandra. (L.)	Ditto.	* An Arab medicinal term, derived from the Greek.
میتي Methí. *s. f.*	شملید Shamlíd.	Fenugreek	Trigonella Fœnu-græcum. (L.)	Ditto.	
سوا Sawá. *s. f.*	سبت Sibt.	....	Umbelliferæ.....	Ditto.	

Obs.—The leaves of the three Mustard-oil plants are also boiled, and eaten as greens.

V.

GOURDS.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
کدو Kaddú. *s. m.* اِیراو Iráó. *s. m.*	کدو Kaddú.	Pumpkin	Lagenaria vulgaris. (Ser.)	Khareef chiefly.	
میهو Meho. *s. m.*	کچرہ Kachreh. دلپسند Dilpasand.	Dilpasand	.....	Ditto.	
ونگو Wango. *s. m.*	ماشورہ Máshúreh.	.....	.....	Ditto.	
چاهو Cháuho. *s. m.* هندانو Hindáno. *s. m.*	ہندوانہ Hinduwáneh. تربوزہ Tarbúzeh.	Water Melon ..	Citrullus vulgaris. (Sch.)	Ditto.	
کریلو Karélo. *s. m.*	کریلہ Karelah.	.....	Momordica charantia. (L.)	Ditto.	
گدرو Gidhro. *s. m.*	خربوزہ Kharbúzeh.	Melon	Cucumis melo. (L.)	Ditto ..	Several varieties, as Dimminshahi, the Kachi (Kutch) Gidroo, &c.
توري Túrí. *s. f.*	خیار Khiyár.	.....	Luffa pentandra, and acutangula. (Rox.)	Ditto.	
چبر Chibbur[u] *s. m.*	روشنک Raushanak.	.....	.....	Ditto.	
بادرنگہ Bádirang[u] *s. m.*	بادرنگ Bádarang.	.....	.....	Ditto.	
ریبري Rebhri. کدو تري Kadotrí.	.....	.....	Trichosanthes anguina. (L.)	Ditto.	

VI.

DYE PLANTS.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
نير Nir[u.] *s. m.*	نيل Níl.	Indigo	Indigofera tinctoria. (L.)	Rubia ..	Fermented in pukka vats, called Houz حوض Blues, greens, and blacks.
کبو Khoinbo. *s. m.*	گل معصفر Gul-i-Muās-far.	Safflower	Carthamus tinctorius. (L.)	Ditto ..	The petals are the parts used. Before drying, they are subjected to a thorough beating with sticks.—Reds & Pinks.
کیسو ڦهل Kesú phal[a.]	گل معصفر Gul-i-Muās-far.	Palasi, Dak, Pullus, Purrus.	Butea frondosa. (L.)	Perennial.	The flowers are the parts used. —Yellows.
ميدي Mendí. *s. f.*	حنا Haná.	Henna (leaves).	Lawsonia alba. (Lam.)	Ditto ..	Not used for calicos, but for woollens and hair-cloths; used also for staining the hands, beard, & hair.—Buffs.
ڈارو Darhú. *s. m.*	انار Anár.	Pomegranate rind.	Punica granatum. (L.)	Ditto ..	Rind of fruit used for calicos; called in Sindee Chodi چودي in Persian Post Anár.—Yellows.
منجٹ Manyunth[a.] *s. f.*	رودنگ Rodang.	Madder	Rubia tinctoria. (L.)	....	Said to be grown in Upper Sind?

Obs.—1. The flowers of the Cotton are used as a Kucha dye.

2. The Lac is found plentifully throughout Sind on the Bubbur (Acacia Arabica), and Ber (Zizyphus vulgaris). It is used for hair, cloths, and woollens.

3. Many other dyes are imported. Turmeric (Haid) is beginning to be introduced; Walnut bark (Musag) is introduced from Afghanistan and the Persian Gulf, and is used by women to tinge their gums.

VII.

CLOTHING AND CORDAGE PLANTS.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
سڻي Siní. *s.f.*	سن San.	Taag-sun ..... Bengal-sun.	Crotularia juncea. (L.)	Khareef..	Fibre separated by steeping in ponds and tanks.
سڃاڏو Sujjádo. *s. m.*	سن San.	Ambaree. (False Sun.)	Hibiscus cannabinus. (L.)	Ditto ..	The names of this and the foregoing plant are often improperly confounded.
واڻ Wáun[u]. *s. m.*	درخت پنبه Darakht-i-Pambeh.	Cotton	Gossypium herbaceum. (L.)	Ditto ..	Seeds sold in all bazars, to feed oxen. Gossypium obtusifolium (Rox.) grows perfectly wild all over the limestone formation in Sind.

The Cotton itself is called in Sindee Kapahu کپا and in Persian Pambeh پنبه
The seeds are called in Sindee Kákáro (*s. m.*) ککرو in Persian Pambeh dáneh پنبه دانه
The capsule or pod is called in Sindee Kápásyo (*s. m.*) کاپاسيو
There are several kinds of Cotton, *e. g.* Sindee, Kachi (Kutchee), Narmú, Viláyatí, &c.
Many wild plants in Sind yield excellent twine and rope.

VIII.

TOBACCO AND SUGAR PLANTS.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
كمانڈ Kamándu. *s. m.*	نيشكر Naishakkar.	Sugarcane	Saccharum officinarum. (L.)	Khareef ..	There are several varieties, *e. g.* Kamánd Acho (white), and Gáro (red). The best kind is called Chándukái چاندكاي from Chánduko, the country about Larkhana, which formerly was the property of the Belooch tribe called Chándujo.
تماكُ Tamáku. *s. m.*	تنباكو Tanbákú.	Tobacco	Nicotiana tabacum. (L.)	....	The first crop is called نيري Néri; the second is gathered about a month later, and is inferior; its name is Banti (*s. f.*) بانڈ or Bajara بجر. There are several varieties: the chief are, 1*st*, Shikarpuri, of which there are two kinds, Talkh (bitter) and Mittho (sweet); 2*nd*, Sindee, a dark and inferior article. All the Sind tobacco is sweated in cocks, and covered with mats, preventing the access of air. Hence its inferiority when compared with American.

IX.

INTOXICATING PLANTS.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
بھنگ Bhang[a]. *s. f.*	کنب Kanab.	Hemp.....	Cannabis sativa ...	Rubia	The most celebrated kind in Sind is called Bubukáí Bhang, from the town of Bubak, near Lake Munchur. It is very strong.
پوست Post[a]. *s. f.*	کوکنار Koknár.	Opium Poppy ..	Papaver somniferum. (L).	Ditto ..	Vide end of these remarks for a detailed account of the different "Modes of Intoxication" practised in Sind.
دتورو Dhatúro. *s. m.*	نبرق Nabrak.	Thorn Apple ...	Datura alba. (L.)	Ditto ..	Partly wild, and partly cultivated about houses. There are two varieties, Acho (white) and Káro (black); the last rare.

X.

MEDICINES.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
جان Ján[i.] *s. f.*	اجمود Ajmúd.	.....	Ptychotis ajowan. (L.)	Rubia ..	Seeds carminative.
اِسپنگر Ispangar[u.] *s. m.*	اسپغول Ispaghol.	Issufgool; Esubgool.	Plantago Ispaghula. (Rox.)	Ditto ..	Seeds demulcent.
اهريو Ahariyo. *s. m.*	هاله Háleh.	Halim	Lepidium sativum. (L.)	Ditto ..	Seeds used in medicine; plant itself is given to camels, to fatten them.
سونا مكي Soná Makkí.	سنا Saná.	Tinivelly Senna.	Cassia elongata. (Lem.)	Ditto ..	Leaves purgative. Senna similar to that of Aleppo grows wild in Sind.

XI.

CONDIMENTS.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
ودف Waduf[a.] *s. f.*	بادیان Bádiyán.	Souf. (False Fennel.)	Fœniculum panmori. (D. C.)	Rubia ..	Used in Pillaus, cooling and tonic.

فودنو Phúdino. *s. m.*	پودنه Púdneh.	Mint	Mentha viridis. (L.)	Ditto ..	They also extract an essential oil from it.
مرچ Mirch[u.] *s. m.*	فلفل Filfil.	Red Pepper ..	Capsicum frutescens. (L.)	....	Not so much used as in India.
دانو Dháno. *s. m.*	گشنیز Gashniz.	Coriander	Coriandrum sativum. (L.)	Rubia ..	Used in made dishes.
جیرو Jíro. *s. m.*	زیرہ Zírah.	Cummin	Cuminum cyminum. (L.)	Ditto ..	Used in Pillaus; considered inimical to the fœtus, and used as an abortifacient, and also as a preventive against pregnancy.

XII.

FRUITS.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
انجیر Anjír[u.] *s. m.*	انجیر Anjír.	Fig	Ficus carica. (L.)	....	Would repay care and attention. The purple skinned figs are very rarely met with.
توت Tút[u.] شهتوت Shahtút[u.]	توت Tút.	Mulberry	Morus nigra. (L.)	....	Very well suited to the climate. Might be planted extensively along the canals.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
صوف Súf$^{u.}$ *s. m.*	سیب Síb.	Apple	Pyrus malus. (L.)	....	A small, tasteless fruit, like the Summer Apple of England.
فارهو Pháruho. *s. m.*	فالسه Fálseh.	Phulsa.....	Grewia Asiatica. (L.)	....	A very fine fruit in Sind. Many wild species are found on the hills, whose fruit is palatable, and could be much improved by cultivation.
انب Amb$^{u.}$ *s. m.* امو Amú. *s. m.*	انبه Ambah.	Mango.....	Mangifera Indica. (L.)	....	Thrives exceedingly well, and would repay attention. There are many varieties, *e. g.* Ratan Shiddi, Patasho Godahu, Mar, Watar, Makhan, Suraho, &c.
دراکه Drakh$^{a.}$ *s. f.*	انگور Angúr.	Grape Vine....	Vitis vinifera. (L.)	....	In speaking Sindee, Drakha is used for the country grape, as opposed to the finer fruit brought down from the northward. The Khishmish, or dried grapes, are not prepared in Sind.
بیر Ber. *s. m.*	کنار Kunár.	Jujube	Zizyphus vulgaris. (L.)	....	Many varieties exist, one very large one, called the Sufu Beru or Makkái Beru. The wild Jujube (Zizyphus jujuba) is called Beru Janguro.
جمو Jamú.	.....	Rose Apple....	Jambosa vulgaris. (D. C.)		

لیمو Límú. *s. m.*	لیمه Límeh.	Lime	Citrus bergamia. (Rino.)	....	
زیتون Zaitun[u.] *s. m.*	.....	Guava	Perdium pyriferum. (L.)	....	Properly speaking, Zaitun signifies the Olive; it is improperly applied to the Guava.
نارگي Nárigí. *s. m.*	نارنگي Nárangi.	Sweet Lime....	Citrus limetta. (Risso.)	....	Much cultivated. It is also called Sangatari in Sindee. The Orange does not appear to be cultivated.
ناریل Nárel[u.] *s. m.*	نارجیل Nárgíl.	Cocoa Palm ..	Cocos nucifera. (L.)	....	About Kurachee only, where it might be extensively planted on salt soil with advantage.
سیتافهل Sítá phál[u.]	.....	Custard Apple..	Anona squamosa. (L.)	....	Found only in the garden belonging to the late Meer Nusseer Khan, near Hyderabad.
بجورو Bijoro. *s. m.*	ترنج Turanj.	Pompelmoun; Pummalo ?	Citrus decumana. (L.)	....	Ditto ditto; occasionally called Turanj by learned Sindees.
کیورو Kewiro. *s. m.*	موز Mauz.	Plantain	Musa Paradisiaca. (L.)	....	Kewiro is both the fruit and the tree. The former is also called Kewire-ji-phari. The Hindoos use the leaves as eating plates, and call them Kewire-ji-pátal.
دارهو Dáruho. *s. m.*	انار Anár.	Pomegranate ..	Punica granatum. (L.)	....	Very well suited to the climate; would repay care and attention.

Sindee.	Persian.	Common Name.	Scientific Name.	Season.	Remarks.
گیدوری Gedúrí. *s. f.*	خرپستان Khar-pistán; *i. e.* Ass's Dugs.	Greater Sepistan.	Cordia latifolia. (L.)	....	Fruit called Geduro.
لیسوری Lesúrí. *s. f.*	سگ پستان Sag-pistán; *i. e.* Bitch's Dugs.	Smaller Sepistan.	Cordia myxa. (L.)	....	Fruit called Lesúro. A wild species (Cordia Rothii, R. and S.), called Liyari, لیاری is sometimes introduced into gardens.
کویت Kawítu. *s. m.*	.....	Wood Apple ..	Feronia elephantum. (Corr.)	....	Rind of fruit used for snuff-boxes.
تار Tár *s. f.* کجي Khají. *s. f.*	نخل Nakhl.	Date Palm	Phœnix dactylifera, and sylvestris. (L.)	....	Much might be done towards improving this useful fruit in a country so well suited to it. When on the tree, the fruit is called جارکه Jarikha *(s. f.)* or دوکو Danuko *(s. m.)*.
امري Amrí. *s. f.*	تمرہندي Tamr-i-Hindí; *i. e.* Indian Date.	Tamarind.....	Tamarindus Indica. (L.)	....	Wild and cultivated; the fruit is called Gidamree.

REMARKS ON THE MODES OF INTOXICATION IN SIND.

WINES.—The wines, properly speaking, are of two kinds, viz :—

1, Kishmishí.—Made of dry grapes.

2, Angúrí.—Made of the Sind grape, at Hyderabad, Sehwan, and Shikarpoor.

Both the above are either pure, or mixed with a spirit extracted from raw sugar.

LIQUEURS.—Of the liqueurs, I am acquainted with only seven varieties, viz :—

1, Dárúⁿ, or Sherábᵘ Soufi.—An extract of aniseed, colourless, expensive, and not much drunk; the spirit in it is generally Gur-brandy.

2, Gulábí Sherábᵘ.—Made of Gur or other spirit, and perfumed with roses.

3, Kaysarí Sherábᵘ.—Made as above, and coloured and perfumed with saffron.

4, Muskí Sherábᵘ.—Containing musk and other ingredients.

5, Karne-jo-Sherabᵘ.—Made of the flowers of a shrub called Karno, and Gur-brandy.

6, Sherabᵘ Turanjí.—Made by pouring spirit upon citron peel.

7, Sherabᵘ Misrí.—A composition of spirits, sugarcandy, and other ingredients.

ALCOHOLS.—The two spirits in most general use are,—

1, Kattalᵃ-jo-dárú, date-brandy.—An article well known throughout the Eastern World.

2, Gurᵃ-jo-dárú.—An alcohol distilled from raw sugar.

The above are drunk by the poor. Those that cannot afford the best kind drink the inferior description, here called Píchak.

OPIUM.—Opium was much eaten before the time of our taking Sind: it is now less common, owing to the increased expense.

Preparations of the *Cannabis sativa* are almost universally used by the lower orders : it is probable that to this habit we may attribute the impotency so common among them, and the consequent corruption of morals. The following are the common forms, viz :—

1, Bhángᵃ, or Sukho, or Sawíá.—The small leaves, husks, and seeds of hemp, ground and mixed up with water, milk, and other additions.

2, Gánjo.—The inflorescence of the hemp before the gum has been expressed; smoked in a water pipe, till a peculiar contraction of the throat is felt.

3, Charas.—The gum of the hemp (rarely eaten, except when prepared as a sweetmeat); generally smoked like Gánjo.

All the three preparations above enumerated are considered highly aphrodisiac, and frequently produce madness, delirium tremens, catalepsy, and other diseases.

Maajum.—There are many intoxicating sweetmeats termed Mãájúms, and generally used by the higher classes. Some of these preparations are made up of as many as twenty or thirty different ingredients. The basis of all of them is milk (or ghee) and sugar; the intoxicating matter, Charas, Gánjo, Bhang, Opium, Datura, and Poppy Seeds; the condiments, Cloves, Mastich, Cinnamon, Aniseed, Cummin, Cardamoms, &c. &c.

Tadhal.—Tádhal is the generic name for the cooling preparations of Bhang, poppy seeds, and other such articles, drunk during the hot season by the wealthy. The Bhang is believed to have great refrigerating powers, and to neutralise the effects of heat.

The seeds used in preparing these articles are,—

1, Khashkhash; the Poppy Seed.—It can scarcely be called intoxicating, but aids in producing that peculiar drowsiness which constitutes the delight of the votaries of hemp.

2, Dháturo, the seeds of the *Datura stramonium*.—An active poison, only used by those upon whom hemp, by constant usage, has lost its effects. The Halwái, or sweetmeat makers, are in the habit of mixing up this seed with their Mãájúms.

NOTES

RELATIVE TO THE

POPULATION OF SIND;

AND THE CUSTOMS, LANGUAGE, AND LITERATURE OF THE PEOPLE; &c. &c.

BY

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18TH REGIMENT BOMBAY N. I.

Submitted to Government on the 31*st December* 1847.

POPULATION OF SIND, &c.

The Musulman portion of the population of Sind may be divided into two great bodies,—

I.—The Sindee proper.

II.—The naturalised part of the community, viz. the Syuds, Afghans, Beloochees, Africans, Memons, and Khwajas.

The Sindee may be considered as the descendant of the original Hindoo population, converted to Islamism during the reign of the Beni Umayyeh Khaliphs.

The Native annals distinctly mention that Mahomed bin Kasim, the Arab General, found a large and flourishing kingdom in Sind, guarded by a well appointed and efficient army. From the same sources we gather that during the age of ignorance (*i. e.* the time which elapsed between the rise of Christianity and Islamism) emigration had taken place on a large scale from Arabia to Sind; and as, besides other evidence, we may remark that the traditions of Kurdistan, Persia, and Afghanistan all agree in asserting that they were either colonised or conquered by wandering tribes from the great peninsula, there is no reason why Sind may not at a remote age have been overrun by wanderers from Arabia.

The province was easily conquered by the Moslem invaders, and was by them entrusted to a family of Sind converts, whose descendants are still settled in the country. After a long series of invasions by all the hill people from the north and east, it fell into the hands of the Talpoor race of Beloochees, who governed it for about sixty years.

The Sindee is taller and more robust than the Native of India. He is of dark complexion, and tolerably strong and muscular; but idle, apathetic, notoriously cowardly and dishonorable, addicted to intoxication, unclean in his person, and immoral in the extreme. His character has been debased by constant collision with the more hardy and valorous hill tribes, who have always treated him as a serf; and by his perpetual dependency upon Hindoo Shroffs and Banyans, who have robbed him, and impoverished him to the utmost. The Native histories praise him for his skill in tracking footsteps, and divining by means of

sheep's bones (Phanniya-jo-ilm); his chief occupations, at present, are cultivation, fishing, and hunting. There are few learned men amongst the Sindees, their great Akhunds (or instructors) being at present four in number, viz. Miyan Mahomed of Mathara, Miyan Mahomed of Sehwan, Miyan Ibrahim near Omerkote, and Ali Mahomed of Tatta. They generally instruct gratis, and the course of study lasts from fifteen to twenty years. The student begins with Arabic grammar and syntax; then proceeds to Mankit (logic), and reads from two to five elementary works; next to Ma-ani-bayan (or rhetoric), and reads from one to three books in it. The pupils are then considered sufficiently learned to study the Koran, with its different Tapsir (or commentaries). The Hadees, or traditional sayings of the Prophet, and other branches of education, viz. theology, astrology, magic, alchemy, mathematics, geomancy, &c. &c. are occasionally studied. Females of the highest rank are taught to read (though not to understand) the Koran, and are instructed in the different religious works translated into the Sindee tongue; but they are not allowed to write, for the reason prevalent throughout the Moslem world.

The religion of the Sindee is almost universally the Hanifee form of Islamism; a few of them belong to the Sheea sect, but the latter is too inconsiderable in number to be very troublesome. The Kulhora family did much harm to the country, by encouraging the emigration of Syuds, Moollas, and a host of religious locusts, who did little more than take from the people all they could, and flocked in from Bokhara, Shiraz, Hindoostan, and other directions. As many of the Talpoors were Sheeas, their protegés were of the same faith, but the tenets of Tashayu suffered considerably, as usual, by coming into collision with those of the Sunees.

There are many large clans or families of Sindees; the chief are:—

	Bhíríyo.	Bhaláí.
A	Bahman.	Bahban.
Arísar.	Bhambro.	Bararo.
Abra-Dáoch.	Badí-poto.	Bákro.
Agim.	Baghdo.	Bhojo.
Amro.	Burbulí.	Bakhiyár.
Ahmedání.	Bádal.	Burdí.
Agár.	Bhand.	Boro.
Achhro.	Bákur.	Burdár.
Akro.	Bhopatání.	Behan.
Abro.	Bútro.	Báran.
	Bhugíyo.	Bambho.
B	Binto.	Bhánái.
Bukíro.	Bhatí.	Berand.

Bodhí.
Bhopat.
Bahár.
Báú.

C

Chahán.
Chániyo.
Chhoretho.
Chhedíyo.
Chaghdo.
Chanbán.
Chandveno.
Chhutto.
Cháran.
Chhortiyo.
Channo.

D

Dero.
Dáyo.
Dhokí.
Dapher (or Shikárí).
Dudh.
Dúdo.
Dád-poto.
Dars.
Dado.
Dáraz.
Dhagar.
Dachar.
Dador.
Damkí.
Dadhar.
Dáro.
Dháro.
Dákho.
Dakak.
Dublo.
Dunyo.
Dhággar.
Daherí.
Dúákar.
Deto.
Depar.
Dáochh.
Dínejo.
Dagar.
Dall.
Dambhar.

G

Gaphelo.
Gahlo.
Gaddo.
Giddar.
Gayan.
Garye.
Gel.
Guggo.
Gand Saghar.
Gídar.
Garmo.
Gungo.
Gaicho.
Gagan.
Ghanno.

H

Hále-poto.
Háliyo.
Hinorjo.
Hamátí.
Helayo.
Halleyo.
Hákit.
Hamírako.
Hálo.

I

Isanpoto.
Iakujo.
Iakro.
Iebar.
Iagiyo.
Imát.
Iagsí.
Iuneio.

J

Jahejo.
Júno.
Jhabro.
Jhangasujál.

K

Kokáryo.
Kangár.
Káchhelo.
Khalífor.
Khákí-hálo.
Kháher.
Káho.
Kishmishí.
Kiyan.
Kán.
Khachur.
Kháro.
Kháwar.
Karkulí.
Kánro.
Kodar.
Khuskh.
Kanánd.
Kas.
Kátiyár.
Káuth.
Karyo.
Kakar.
Kírijo.
Káko.
Kebar.
Khohar.
Kátiyán.
Kándro.
Kubbar.
Kabharo.

L

Ládo.
Labhán.
Logo.
Lageto.
Lako.
Lang.
Lákhiyo.
Lándar.
Lákho.
Lodhiyo.
Lángáh.
Lallang.
Laddí.
Landri.

M

Mahmat.
Mahí-poto.
Mange-poto.
Meman.
Manahí.
Mangnáno.
Mashaíkh-poto.
Mor.
Máliyo.
Malár.
Mehar.
Multání.
Mazdujo.
Mírakhor.
Machhor.
Maharo.
Manáhí.
Mandhor.
Mándar.
Mahmúd.
Mocho.
Merí.
Maháno.
Máchhí.
Mangrujo.
Mangnijo.
Máhiyun.
Mindhro.
Mahesar.
Musó.

N

Númryo.
Notyár.
Nor.
Náhujo.
Natání.
Naréjo.
Náich.
Nágno.

O

Othár.

P

Pahwar.
Paran.
Parbátiyo.
Parrár.
Paró.
Patáfí.
Parosar.
Parah.
Pallí.
Pahor.
Pussújo.
Pússáyo.
Parahar.
Pallah.

R

Rajér.
Ramzán-poto.
Ráhú.
Rajiro.
Ráno.
Rúnjho.
Ráthor.
Rangí.
Rajsí.
Rámdeh.
Rániyo.

S

Sammo.*
Sumro.*
Satthio.
Sadhar.
Sodho.
Sánd.
Súfi.
Saho.
Shoro.
Shikárí(or Dapher).
Sáho.
Sudar.
Sadehar.
Sagho.
Sopár.
Shaitání.
Sangí.
Satpuryo.
Sakhéráni.
Sáhar.
Sáhim.
Sehro.
Samejo.
Sipio.
Sehto.
Sorangi.
Sámtiyo.
Siddik-poto.
Siyál.
Shado.
Sholáni.

* The Sammo and Sumro formerly ruled the country, and are now labourers and cultivators.

Sátar.	Táro.	Varo-poto.
		Vidhriyo.
T	U	Vikaro.
Tihbo.	Utho.	Vaijáro.
Tájú.	Udhejo.	Vikyo.
Tájeyo.	Unnar.	
Teno.		W
Thaim.	V	Warso.
Tumyo.	Vighyámal.	Wangiyár.
Túno.	Vahíro.	

The Sindee dialect is a language perfectly distinct from any spoken in India. It is used, with many varieties, from the northern boundary of Kattywar as far north as Bhawulpoor, and extends from the hills to the west, to the Desert which separates Sind from the eastern portion of the Indian peninsula. These limits will agree with the Moslem accounts of the extent of empire belonging to the Rae or Hindoo rulers of Sind. Its grammatical structure is heterogeneous, the noun and its branches belonging to the Sanscrit, whereas the verb and adverb are formed, apparently, upon the Persian model. The dialect abounds in Arabic words, which, contrary to the usual rule in India and Central Asia, constitute the common, not the learned names of things, as Jabal, a hill; Basar, an onion (in Arabic, Basal); Abbo, a father; Thum, garlic (from the Arabic Fum); Shay, a thing; Kull, all; &c. Pure as well as corrupted Sanscrit words, perfectly unintelligible to unlearned Natives of the Indian peninsula, are perpetually occurring in Sind, as Sanee, sir; Kukkur, a cock; Jas, victory; Apar, endless; &c.

The only literature contained in it may be briefly described as religious and poetical, the former being translations of Arabic works on divinity, moral tales, &c., the latter being the popular traditions of the country, cast into rude and unartificial verse. In almost all cases the books have been composed by Sindee Musulmans (as opposed to Beloochees, &c.), and are written in the Arabic character, called the Naskhi. These works are, generally speaking, difficult, and barely intelligible to the Hindoo Moonshees, Mehtas, and Kardars of Sind, and probably this may be the reason why they have hitherto been so little heard of by Europeans. The Hindoos, as will afterwards be explained, have a totally different alphabet, and their own works written in it. To conclude this part of the subject, the only branch of learning valued or cultivated by the Sindee is Arabic. It is not often that he attempts Persian, and the extraordinary difficulty he finds in mastering the most simple arithmetical operation has always rendered him useless as a writer or accountant.

The Sindees being all Moslems, no distinction of caste, properly

speaking, exists amongst them. The Koree (weaver), Dedh, and Chamar (workmen in leather), Chuhro, and Bale-Shahee (sweepers), and Dapher or Shikaree (huntsmen), however, as in all Musulman countries, are considered low and vile. They always marry into their own trades, and the two latter are not generally suffered to live inside the villages and towns.

Among the Dapher or Shikarees, a curious custom prevails: although Moslems, they eat carrion, live in the different Shikargahs, and are not allowed to enter a mosque. When, however, one of this class wishes to become a good Musulman, he lights four fires, and stands in the middle till sufficiently purified by the heat: the Kazee then causes him to bathe, and put on fresh clothes, and finally teaches him the Kalmeh. He then enters into the Machhi class.

Remarks on the Classes Naturalised in Sind.

The different classes naturalised in Sind are as follows:—

1*st*.—Syuds.	4*th*.—Slaves.
2*nd*.—Afghans.	5*th*.—Memons.
3*rd*.—Beloochees.	6*th*.—Khwajas.

The Syuds.—The four great families of Syuds settled in Sind are the Bokharee, Matharee, Shirazee, and Lekhirayee. They are all of the Sheea or Rafizee persuasion, and have been settled in the country for upwards of one hundred and fifty years. Some of them are learned men, and are much respected by the people. Under the Kulhora dynasty they became possessed of much property, but the Talpoors, although of the same religious persuasion, rather patronised literature and the arts than wasted their property upon priests.

Afghans.—The Afghans or Puthans are generally found about Hyderabad, and towards the north. Many of them have been settled in the country for some generations, and are possessed of landed property. In personal appearance, strength, and courage, they far surpass the common Sindee. Their nation has frequently attacked Sind, and invariably succeeded in the enterprise. The two most celebrated invasions in later times are, 1*st*, that under Sirdar Madad Khan Meerzaee about eighty years ago; and that of Shah Soojah, who, however, did not penetrate into the country much beyond Shikarpoor.

Beloochees.—The Beloochees are a mountain tribe, which inhabits the extensive tract of wild and barren country from the Hala Mountains eastward to the confines of Western Persia. When the Talpoor Ameers succeeded the Kulhora dynasty, numbers of their families and dependents settled in the country, and received the reward of their services in land and pensions. The tenure of their Jageers seems to be a rude form of the feudal system. Every chief of a clan was expected

to attend his superior in time of war, and it was a point of honour for each to bring as many vassals into the field as he could muster, though no fixed number was laid down. Another reason of the aggrandisement of the Belooch Zumindars was that the Talpoor Ameers, being mutually jealous and fearful of one another, each strove to attach a greater number of followers to himself, by gifts of land, and other grants.

In our old descriptions of Sind, as for instance those of Captain MacMurdo, &c., the Belooch is generally called a Sindee. The former, however, is a far superior being: he is fairer in complexion, more powerfully formed, of more hardy constitution, and, when intoxicated, sufficiently brave in battle.

He has his own ideas of honour, despises cowardice, and has no small share of national pride. At the same time, he is addicted to intoxication, debauched in his manners, slow in everything except the cunning of a savage, violent, and revengeful; his manners are rough in the extreme; his amusements are chiefly field sports and drinking, and his food is coarse and distasteful. The Beloochees of Sind, in religion, are Hanifee Moslems, though many of them towards Persia are Sheeas; and it was chiefly by seeing so many Tránís at their Court that many of the Talpoors were induced to desert the religion of their forefathers. Their dialect is very little known: it differs considerably from that of the Hill People, and, as far as I can discover, contains no literature, except the productions of their Bhats or bards. Very few Sindees understand it, and the Belooch always converses with the people of the plains in the Sindee tongue.

Another name for the Belooch race is Mirmichee. It is not a light or insulting expression (as Jat applied to a Sindee, or Kirar to a Hindoo), but occurs in their different songs and rhymes. So, for instance, in the old prophetic verses, supposed to allude to the conquest of Sind by the British, and said to have been uttered by the Samoee or Haftan to Jam Tumachee, it occurs thus:—" Káre Kabáre, Jhero lagando chepahar; *Mirmichi* Máre, sukh Wasandí Sindri." (Near the village of Karo Kabaro, a place between Omerkote and Shahdadpoor, a battle will take place during eighteen hours; the Mirmichee will be defeated, and Sind will enjoy happiness.) As a people, the Beloochees are unusually illiterate, and several of the Talpoor family were unable to read or write.

There is not, I believe, in all Sind a single learned Beloochee; even the Ameers contented themselves with a knowledge of Persian and Sindee, with writing books of poems composed for them, and sending to Persia for works which they never perused. As it was with Europeans during the middle ages, the Beloochee prefers the

pleasures of the chase to any other; thinks the training of a hawk a more enviable acquirement than reading or writing; and would rather be able to cut a sheep into two parts than be master of all the sciences ever studied in Bagdad or Bokhara.

The chief clans of Hill People settled in the plains are :—

B

Bágráni.
Bangulání.
Bugtí (Bhoogtee).
Babur.
Badráni.
Bahráni.
Baháráni.
Badáni.
Budhání.
Barphat.
Bhúrgarí.
Buldí.

C

Chandiyo.
Cholání.
Cháng.
Chhalgerí.
Chángáni.

D

Dhonkái.
Dedo.
Domkí (Doomkee).

G

Gungání.
Gorphánd.
Gopáng.
Giskorí.
Gádhái.
Gorchání.
Gabol.

H

Holání.

J

Jakráni.
Jamálí.
Joyo.
Jat.
Jiskání.
Jalbání.
Jalálání.
Jutoi.
Jádání.
Juráwár.

K

Kaprí.
Kalphar.
Karmití.
Khoso.
Kaloí.

L

Loghárí.
Lashárí.
Lúnd.
Lajwání.
Lohání.
Lakakar.

M

Marí (Murree).
Mir-jat.
Manikání.
Mandráni.
Magsí.
Muzárí.

N

Nizámání.
Notání.
Not-kání.
Nahání.
Nodání.
Nidámání.

R

Rind.
Rájer.

S

Sháhwání.
Sálámání.
Sarkhání.

T

Tálpúr.
Thoro.

Slaves.—The slaves are generally domestic or household, not predial or rustic, as amongst the Hindoos of India. Formerly great numbers of Zanzibarees, Bombasees, and Hubshees (Abyssinians), &c. found their way into Sind by Muskat, and other parts of Arabia. They were generally imported and sold young, and fetched from Rs. 40 to Rs. 150; but the Abyssinians were worth sometimes as much as Rs. 400 or

Rs. 500, especially the females. All of them are celebrated for their thievish, drunken, and fighting propensities: under the Native rulers they were almost as troublesome as the Siddees of Kutch. They were treated as inmates of the family, and lived so comfortably that emancipation to them was rather an evil than a benefit. In some cases they rose to distinction, and, as confidential servants of the princes, exercised no small authority over their inferiors. Of this class was the Siddee Hosh Mahomed, the favourite attendant of Shere Mahomed. All this class became Hanifee Musulmans, and, generally speaking, married females of their own caste. The male Siddees of one family usually took to wife the female slaves belonging to it, and did not connect themselves with the property of another master. The children of slaves were of course slaves, and manumission appears to have been rarely practised, except for religious motives.

Occasionally a Sindee Moslem would marry a Siddyanee, and the half-caste offspring is called a Guddo. A Quadroon, or the offspring of such half-caste, and a Sindee father, is called a Kambrani.

Memons.—Many Memons are found settled in Sind, especially about Hyderabad, Sehwan, and Kurachee. They doubtless were originally Kutchee Hindoos, who became Moslems, and probably emigrated to Sind during the Kulhora rule. Their avocations are trade, agriculture, and breeding camels; their dress is that of the Sindee, and their faith that of Abu Hanifee. Some of them are very learned men, and they have done more than any other class to introduce the religious sciences into this country. I have noticed this class of people, as they have either abandoned or never adopted the heresy so common among their brethren in Bombay, viz. the system of depriving the females of their pecuniary rights in wills and inheritances. The Sind Memon always adheres to the word of the Koran; leaves one-fourth of his property to his wife, if he has no issue by her, and one-eighth should he have issue. His daughter, moreover, claims half the portion of property allowed to a son. No class of people in Sind is more highly spoken of than the Memon.

Khwajas.—There are but few Khwajas settled in this part of the world. Their own account of their origin, &c. is that they originally emigrated from Persia; and it is almost certain that they fled from their native country when the Ismaeliyeh heresy (to which they still cleave) was so severely treated by Halaku Khan. They differ from the Ismaeliyehs in one essential point, viz. whereas that people only believe in seven Imaums, the Khwajas continue the line up to the present day. They are therefore heterodox Sheeas, as they reject Abubekr, Omar, and Osman, and reverence Ali, Hasan, Hasein, Zainul Abidin, Mahomed-i-Bakr, and Imaum Giafari Sadik. The Khwajas, male and female, all

wear white, red, and coloured clothes, avoiding dark blue, the usual hue of the country. They have their own Mukhee in Kurachee, and never go to the Moslem Kazees to settle their religious differences. Under the Mukhee are a number of inferior officers, called Warees, and their probity (among their own caste) and strictness of life are highly spoken of. Their present Imaum, Agha Khan, now a pensioner of the British Government, has done much towards injuring these poor people, by his rapacity, and ill-judged extortion.

Hindoos.—The Hindoo portion of the community occupies in Sind the same social position that the Musulmans do in India. As in Arabia, Afghanistan, and other portions of Central Asia, the Hindoo of Sind is merely employed in trade, and in ministering to the religious wants of his fellow castemen. We therefore find among them none of the outcasts (as Purwarees, Mangs, Korees, Pasees, Chandalas, &c.) so numerous in their own country. It is very probable that few or none of the Hindoo families which existed in Sind at the time of the first Moslem inroad have survived the persecution to which they were subject; and it is most likely that by degrees they were either converted to Islamism, or emigrated to another land. The present race is almost entirely of Punjaubee origin, as their features, manners, religion, ceremonies, and opinions, as well as their names, sufficiently prove. But although from the country of Nanak Shah, few of them are really of the Sikh persuasion, though most of them have a tendency that way. The fact is, the latter religion is so confused, and intermingled with Hindooism, that we can scarcely discern where the distinction begins or ends.

As, however, they still persist in dividing themselves into castes, I may follow their own plan, in enumerating the chief subdivisions, and add a short description of each.

Bramins.—Of the Bramins we find two chief castes, which do not intermarry, viz. 1*st*, Pokarno; 2*nd*, Sarsudh.

The Pokarno are Shewaks (or worshippers) of Maharaj, an Avatar of Vishnoo, and are therefore pure Hindoos. They eat no flesh, and wear the turban, not the Sind cap; they shave their beards, and dress very like the common traders, or Soucars. The Pokarno considers himself superior to the Sarsudh, as the latter will eat from his hand; moreover the Pokarno generally can read, if not understand, Sanscrit, and is skilled in drawing out the Janam-patri or horoscopes of children, &c. His knowledge of astrology is, however, very confined. Few of this caste learn Persian, or undertake business of any kind, public or private. The Pokarno takes the affix Das, Ram, Chund, Rae, Mal, Jee, and Misr, before or after his name; as Misr Sukhdeojee, Taro Misr. They live by instructing the Hindoos in their Dharma or

religious duties, by deciding horary questions, writing out the Tripno, or astrological aspect of a man's fortunes, and other such impositions. They are much respected by their inferiors in caste, and even by those who profess the Sikh faith. To the sanctity of their name and origin, they add the prestige of a tolerably strict life, never drink spirits, and never marry out of their own caste.

The Sarsudh worships Mahadeva (or Shiva), and Bhowanee, his Sakti. The latter deity is known to them by many names and forms, *e. g.* Durga, Devee, Parwutee, Kalee, and Singhawanee (the "Rider of the Lion"). Most of the Tirthas, or places of Hindoo pilgrimage in Sind, are sacred to the latter deity,—as Hinglaj; the Maklee Hills, near Tatta; Dhara Tirth in the Lukkee Hills, near Sehwan; &c. The Sarsudh only abstains from certain kinds of flesh, as that of the cow, tame fowls, and other impure meats; he eats the deer, kid, sheep, wild birds of most species, fish, and onions. The meat is always bought, as most castes of Hindoos in Sind will not kill any animals themselves. The Sarsudh marries in his own caste. As regards dress, he wears the clothes of a Soucar or Hindoo merchant, and shaves the beard; he is not distinguished by any peculiarity in the Tilak, or sectarian mark. So also the Pokarno places on his forehead a perpendicular or horizontal mark indifferently; whereas in India the former distinguishes the worshipper of Vishnoo from the Shaivya, who is known by the line across the brow. Most Sarsudhs wear a white turban, whereas the Pokarno prefers a red one; and the former will occasionally assume the costume of an Amil (or an individual in civil employment), whereas the latter, as a rule, never does. There are considerable numbers of this caste at Hyderabad, and Sehwan or Sewistan. Few of them learn Persian, but confine themselves to Sanscrit, and the Gurmukhee writtings; and it is very rare to find any of them engaged in Government business. The Sarsudh has very little astrological knowledge, but he makes up for his deficiency in that line by a rather rude succedaneum. The mode by which he divines futurity is as follows: the questioner goes to the Bramin, and makes some inquiry respecting his future fortunes. The seer holds his breath for a short time, and, the more effectually to prevent respiration, closes his nose with one hand. After a little delay, he pronounces upon the issue of the affair, and receives a small sum for his trouble. This style of prediction is called Nashkan Koran, and is generally practised in Sind, although it would almost appear to require more power of imposture in the practiser, and more credulity in the dupe, than most men are capable of.

Kshatriya.—Of the Kshatriyas we find but a few who lay claim to the honours of that caste; and here I may observe, that it is general throughout India for the different castes of fighting Shudras, whose pecu-

jiar Dharma or religious duty it is to engage in war and plunder, to call themselves Kshatriyas, although, according to Hindoo history, all that race was annihilated by divine wrath. So the Nair of Malabar, who is notoriously of servile caste, will describe himself and his ancestors as belonging to the royal or fighting division; wears the Janeo or thread of the twice born, and demeans himself accordingly. The Kshatriya of Sind is almost invariably a Wanee or Banyan, who becomes a follower of Nanak Shah's faith. He is therefore a common Sikh, and, by the rules of his religion, ought not to be bound by any distinction of caste. He refuses to touch meat, unless the animal has been killed according to the form called Jhatko, *i. e.* a single stroke of the sword across the neck, whilst the words "Bol Khalsa, wah gurnkí fath" are pronounced. This the Kshatriya generally does himself, or gets some other fellow-casteman to perform for him. The Kshatriya in Sind generally engages in trade: very few of them are Amils, and their studies are usually confined to Gurmukhee, and the writings of the Gooroos. They wear no peculiar costume, and do not necessarily shave or wear the beard; they are either deists, or worshippers of the Hindoo Deities indifferently, and feed like the Sarsudh Bramins.

Waishya.—Of the Waishya, Wanee or Banyan caste, we find one great family, viz. the Lohano. It is, as usual, divided and subdivided almost *ad infinitum*, but the distinguishing features of the race are still sufficiently prominent. In treating of the Lohano caste, we describe the main body of Hindoos in Sind.

The Lohano wears the thread of the twice born, though a very imperfect specimen of the Waishya race. He eats meat, drinks spirits, and will not object to fish and onions. Some are Vishanvahns, or followers of the Vaishnya faith; others worship the different incarnations of Shiva and his Sakti; some, again, are of the Sikh faith; whilst others venerate the river (Indus) god and his Wuzeer, under the respective names of Jenda Peer and Udhero Lall. Their devotions are neither frequent nor regular; they generally content themselves with attending the different Mela, Jat, and Darsan (*i. e.* different kinds of religious fairs and meetings), where much more licentiousness than devotion is to be met with.

The Lohano's prayers, if they can be so called, are usually in the Punjaubee, rarely in the Sanscrit or Persian languages.

They are said to have a few works in the Sindee tongue, written in the Khudawadee character, but they are very unwilling to show or sell them to Europeans.

Gooroos.—The Gooroos (or religious instructors) read and explain books to their followers; and the Lohanos who engage in trade always keep their Vahiyun or books in the rude and all but illegible Sindee character. In their spoken dialect they are fond of words of

Sanscrit, instead of Arabic or Persian origin; their names of the days of the week also differ from those used by the Musulmans. The two faiths are mixed up together in an unusual way in Sind: the Hindoo will often become the Murid of a Moslem, and *vice versâ*. So Agha Khan, the Imaum, or visible head of a branch of the Ismaeliyeh heresy, has a number of Hindoo followers, who reverence him, and pay the usual sum (one-eighth of their gains), as if they belonged to the same caste. So, also, the same Peers or saints buried in different parts of the country are not only respected by individuals of both religions, but, moreover, the Hindoos will all have one name for each, and the Moslems another. Thus the former venerate the river god under the name of Jenda Peer, whereas the latter call him Khwaja Khisr; so also Udhero Lall becomes Shaikh Tahir; Lalu Jasraj is converted into Peer Mungho (Muggur Peer); Raja Bhartaree is called Lall Shahbaz; &c. And of course the Hindoos claim those worthies, most probably with more justice than the Moslems, who have merely altered the name for their own purposes. By this style of proceeding, it is not difficult to make out the number of these saints said to be buried in Sind, viz. 125,000. Contrary to the practice of high caste men in India, here we find that Hindoos who have been forcibly made Moslems, and compelled to be circumcised, to say the Kalmeh, attend the mosque, and eat the flesh of the cow, can be admitted into their original Dharma by going through certain ceremonies, and paying highly for the luxury.

Classes of Lohano.—The Lohano may be divided into two great classes, according to their several occupations,—1*st*, the Amils, or Government servants; 2*nd*, the Soucars, Hathwara, Pokhwara, &c., *i. e.* merchants, shopkeepers, agriculturists, &c.

Amils.—The Amils have adopted the Musulman costume, wear the Topee, the beard long, the Sutthan or drawers, and only shave the crown of the head. They do not, however, trim the mustachios according to the Sunnat, often will put on the Tilak or sectarian mark, and wear the shirt with a gore across the left breast, whereas the Moslems always have the opening down the right side. The former, too, have not adopted the Tohar or circumcision, and neither eat nor intermarry with the followers of Mahomed. Like other Lohano, they eat the same meat as the Sarsudh Bramin, buy flesh from Musulmans (as it is unlawful for them to kill anything), and drink water from the hand of their inferiors in caste. Their marriages are expensive, and seldom cost less than five or six hundred rupees; consequently many remain single till late in life. They seldom take more than one wife, unless that one be barren; and dislike, though will not refuse, to marry a widow. In the Khudabadee caste of Lohano, if a girl becomes a widow

early in life, the deceased husband's brother generally marries her: the practice is occasionally, though rarely, met with among the other divisions of that race. The ceremony preliminary to marriage is called Manyno, or betrothal: it is conducted by the intervention of a Sarsudh and a Zajik (musician), and their wives. The two males enter into a treaty with the father of the intended bride, and the females conduct matters between the women of the two families. If agreed upon, they wait for the first lucky day, and then send to the sister or sister-in-law of the bridegroom a dish of sweetmeats, and cocoanuts, and a few rupees. This and a few other ceremonies being duly concluded, both parties patiently await the means of matrimony. The nuptial ceremony is a matter of no small consequence: it lasts from nine to thirty days; a large sum is expended in feasts; Bramins and Gooroos attend, to read out the different formulas; and lastly, the bride is taken to the bridegroom's house. It would be too tedious to enter into the minutiæ of this ceremony, and as some of the proceedings are of a very peculiar nature, I therefore refrain from any detailed description of them.

As regards education, the Amil begins with going to a Bramin, where some ceremonies are gone through, and the Sanscrit alphabet read to him. He then attends some Akhund or teacher, and reads from morning till night, with a short break about the middle of the day. The first book is the Babnamo or spelling book; next a short collection of verses, called the Sat Kitabee; then the Gulistan of Saadi; lastly the Tusha of Harkaran. He also translates Persian into Sindee *vivâ voce*, learns to write the former tongue, and begins arithmetic. When he has acquired the elements of the latter study, he is introduced into one of the Dufturs by some relation, and there puts into practice that of which he has learned the theory. The rules of arithmetic generally known are Jumma (addition), and Khora or Zarb (multiplication); the other simple operations are performed rather by guesswork than by rule. The Persian, spoken and written, is of the most solecistic description, and both in point of pronunciation and handwriting is inferior even to the Indian jargon formerly so generally used. A most unintelligible kind of Shikastah or running hand is the only one of the seven kinds of writing known in Sind, and Native words are introduced almost *ad libitum*.

As regards the general appearance and character of the Amil, we may describe him as a more robust and a better looking man than the common Sindee, and account for the difference by referring it to his meat diet, and indulgence in spirits instead of Bhang. He is rather acute than talented, and evinces much readiness in accounts, and in managing money matters. Even the Ameers, with all their hatred and

contempt for Kafirs, could not collect or dispose of their revenues without the aid of Hindoo Amils. Thus probably arose the Kardar system, which, though totally of a different nature, is in Sind what the Patel and his little republic are in different parts of India. But although the Native rulers had checks over their officers which we have not, we find that no Ameer could ever consider himself safe from the most impudent frauds. To conclude this part of the subject, I may safely assert that in no part of the Eastern world, as known to us, does there exist a more scheming, crafty, or dangerous race, than these Hindoo Amils. They are held by no oath, fear no risk, and show no pity when in pursuit of gain; they hesitate not to forge documents, seals, and orders, for the most trifling advantage; show a determined fondness for falsehood, and unite the utmost patience in suffering to the greatest cowardice in action.

Soucars, &c.—Some of the Setts or Soucars wear the costume of the Amil, others are dressed like the common Hindoo shopkeepers and agriculturists. The clothes of the latter are a turban, an Angurkho (or long cotton coat), a Lung or Poteyo (*i. e.* a Dhotur), a Kamarbund, and a Bochan or handkerchief thrown over the shoulders. They shave the beard, but do not trim the mustachios; wear the Janeo and Tilak, and shave the crown and back of the head, so as to leave merely a Choti (or lock on the pole), and Chuna (or bunches of hair on both sides). When in mourning, they shave the mustachios and the Chuna. For education, the trader goes to a Wajho (or Hindoo teacher), who teaches him the Sindee (not the Arabic) alphabet, reading and writing, together with a little arithmetic and book-keeping. After a year or two, he is supposed to have finished his studies, and begins to learn business by practice. It is needless to say that these individuals prove themselves uncommonly acute, and show the same aptitude for business as their brethren in India. Some of them, as for instance the Shikarpooree merchants, wander all over Central Asia, and it is commonly said in Afghanistan that everywhere you meet with a Jat and a Kirar (or Sindee Banyan). Their staple articles are cloth and Hundees, especially the latter, and large fortunes used thus to be acquired. Under the British Government their system of remittances has been all but done away with. The Shikarpooree Hindoos are as notorious for the depravity of their females as for wealth and commerce; in fact their caste fellows in other parts of Sind have often taken the subject into serious consideration.

The names of the Amils, merchants, shopkeepers, and other members of the Waishya class are usually of Sanscrit derivation, and the different affixes, Mal, Chund, Rae, Ram, Das, Lall, &c., are generally added to the individual's name. But these words do not

denote, as they frequently do in India, any difference of caste: the son of a Ram or Lall may be called Chund or Mal, and *vice versâ*.

The Shudra Division.—Of the Shudra or servile caste, we find several varieties. They all have adopted the Janeo and Tilak, and intermarry in their own castes. The Wahun exercise the craft called in Persian Nukhudpazi, and subsist by preparing and selling different kinds of toasted grains. The Sonaro or Targar is, properly speaking, a mixed caste, descended from a Bramin father and a Shudra mother. In Sind, however, he is considered as one of the servile race. Like his brethren in almost all countries, he is distinguished for a superior degree of craftiness, and is usually a wealthy man for his station in life. The Hindoo females in Sind wear a profusion of ornaments, and the Moslems have imitated the custom, though the latter do not use so many different kinds of decorations as the former.

A list of the Geha (or jewels) in common use would contain about two hundred words, many of them pure Sindee, others borrowed from Hindoostan and Persia.

The Khatee or dyer caste is a large one in this country, as coloured clothes are generally used by Hindoos and Moslems. They generally live at some distance from the large towns, and the reason for their so doing is said to be that they derive therefrom a greater facility in charging high for the article dyed. Many of them, however, are found in the towns, and there is no religious prejudice against them. It is most probable that they find it necessary to live near the wells from which the sweetest water is procured, and establish their manufactories accordingly.

The Sochee or shoemaker will not dress or tan leather; he buys it of the Moslem Mochee (or tanner), sews it, and, if required, embroiders it with silk.

The Hujam generally comes from about Jeysulmere, but he is of Sindee extraction, and wears the dress of his own country, though his turban is generally of the Jeysulmere form.

The above are the chief Shudra castes in Sind: they worship Mahadeva and Devee, and they have no priests but Bramins. The names of the Shudras may be known by the absence of the affixes Ram, Mal, &c., and the use of the appellation of the caste after the individual's own name, *e. g.* Teju Wahun, Pursu Sonaro, Haru Khatee, Khatta Sochi, &c.

Sikhs.—Besides these different classes of Hindoos, there are a few of the nondescripts called Sikhs, resident at Hyderabad, Sehwan, and other places in Sind. They have separated into two grand divisions, viz. the Lohano Sikh, and the Akalee or Khalsa. The main difference seems to be that the latter will eat some meats (as for

instance that of the domestic fowl) which the Lohano will not touch; and, on the contrary, the former in cases of mourning will shave their faces, whereas the latter will never allow a razor to touch their hair or beards. The Sikhs are easily recognised by the fairness of their complexions, and by a peculiar look and general appearance. Their devotions are in the Punjaubee language, and their holy books (as the Adi Grunth, the Dashama Grunth, and the Panj Grunth) are composed in that dialect, and written in the Gurmukhee character. Those sacred volumes are generally placed in Dhurumsalas, or places devoted to their reception, and a Fakeer (called an Udhasee), with a Murid (or young follower, technically termed a Tahlio), are placed to watch over and preserve the books.

Religious Mendicants.—Of religious mendicants we find the Shanasee, Jogee, Gosaen, and Jungam, though the latter is very rare. The four former are originally of Bramin origin; the Jungam is generally a Native of Hindoostan. The Shanasee has ochre-coloured (Geru) clothes; and wears a turban, not a cap. He is, strictly speaking, a religious mendicant, subsists by begging, and by the alms of his Chelas. He is also a kind of venal sorcerer, and acquires great consideration by the sale of his Mantras and Jantras. The Shanasee worships Mahadeva, and never marries. He sometimes commits suicide, by ordering his pupils to bury him alive (a rite called Guffah); but if he dies in the course of nature, he directs his body to be disposed of either by Dhartidak (*i. e.* burying in the earth), or Jaladak (*i. e.* throwing into water). The former is generally, the latter only occasionally practised. The following is the usual way of performing Jaladak:—A Dillo (or pot) full of sand is fastened to each arm and leg of the corpse; it is then carried into a boat, till the mourners get to deep water, and the body is there cast in, with many ceremonies.

The Jogees also have ochre-coloured clothes, but wear caps instead of turbans. Their habitations are called Astan, and they live by the same means as the Shanasee. They pierce a large hole in the lobe of the ear, and are therefore called "Kana-phar" or the Ear-splitters. When dying, they are not allowed to lie down, but placed in a sitting position, leaning forward on a Beragin (a wooden pillow). For the Jogee's tomb they dig a pit, fill it half full of salt, place a Pahori (mattock) in the corpse's hand, and then seat it upon the layer of salt, in the position called Patrole (or cross-legged), with the arms resting on the Beragin. Salt is then again thrown over the body, and earth above it. Some great men of the caste have a tomb of bricks, and a lamp lighted before it.

The Gosaen has many Chelas in Sind. He appears like the Shanasee, lives by alms and presents, and often amasses a considerable sum of money. He is generally thrown into water when dead.

The Ogar resembles the Jogee, as the Gosaen does the Shanasee. He carries a bit of hollow stick, fastened by a thread round the neck, and invariably blows through it before undertaking any action whatever.

The Jungam,* being an Indian, not a Sindee beggar, requires not to be described here.

None of the four classes above described wear the Janeo. Their names are thus distinguished: Natgur Shanasee; Surajgur Gosaen; Goruknath Jogee; Sarasatinath Ogar; &c. &c. They all worship Mahadeva, Goruknath (a son of Mahadeva according to their account), and Babakinath, a peculiar Avatar of Goruknath, worshipped at Hinglaj, and so called from the Sindee word Babakan (to boil up), because when a votary approaches the holy spot, the mud boils up of its own accord.

The Hindoo females in Sind appear to be fond of intrigue, especially among their own people; possess a considerable share of personal beauty, and seldom, if ever, become common prostitutes. The Musulmans, on the contrary, seem to have little objection to entering the bazar, and, like the Moslems in many parts of India, appear to consider it rather an honorable occupation than otherwise. The reason of this point of superiority in the Hindoo over the Musulman probably is, that in the first place the former exercises a stricter surveillance over his females; and secondly, he seldom drinks Bhang, and is accustomed to a more substantial diet. It is not the custom for respectable individuals of either religion to travel about with their women, or to take them to foreign countries; they usually leave them under the charge of their parents and friends. In places where this practice is universal, as for instance in Shikarpoor, it is not unusual for a husband to return home after a long sojourn in foreign lands, and find his wife with a small family of her own. The offended party, however, seldom allows these incidents to interfere with the domestic tie, and after inflicting a mild chastisement, thinks no more about it, and treats the fatherless offspring with a truly paternal kindness.

All the Hindoos, with the exception of the religious mendicants only, burn the bodies of their dead. No one is allowed to die in his bed, otherwise one of the males of the family who has attended upon the deceased becomes in a state of impurity, and must visit some well known Tirtha, as for instance Narayensar in Kutch, Dhara Tirth, &c. The sick man, when near death, is placed upon a Chanko, Lepan, or Poto (*i. e.* a spot smeared with cowdung), and when in the last agony, Gunga water, Sherbet of Tulsee leaves, &c. must be poured into his mouth. If the dying man be rich, copious alms are then distributed to the poor; but if not sufficiently wealthy, a little wheat and ghee are considered sufficient. The mourners then bring seven pieces of pure

wood, as that of the tamarisk tree, &c. to make up the Acharni (or bier). Immediately upon this Jowaree stalks are placed, then some white Khadee cloth; next a layer of cotton; then a piece of Bafto (or fine cotton cloth); and lastly the corpse, in a Kafan (a kind of shroud): over the body, a shawl, a piece of Kinkob, Mushroo, Gulbadan, or Khudbaf should be thrown, and it is tied down with Jota, or fine string of Sara (probably the Arundo Karka). Perfumes and flowers are then thrown over the corpse, and after a few short ceremonies the bier is raised by four of the nearest relations, who are relieved of their burden by the other friends of the deceased at certain intervals. When arrived at the Masan (burning-place), they throw a potful of cold water over the body, and place it upon a pyre of wood, generally Babool; a Bramin and other religious characters then approach, place a piece of money and other articles in the corpse's mouth, and then the four relatives who first raised the body light the pyre at the corners. The mourners then retire till the corpse is consumed, after which they walk round the pyre three times, bathe, and return home. A vast variety of ceremonies then follows, and the routine is not usually finished before twelve days. The widow shaves her head only once. The fine distinctions of death during the Uttarayan and the Dakhshanayen do not seem to be recognised; and the Sutee rite also appears unknown to the Sind Hindoo, although it doubtlessly was practised in the olden time.

EXTRACTS FROM ROUGH NOTES

BY

MR. H. B. E. FRERE,

COMMISSIONER IN SIND,

CONTAINING INFORMATION WITH REFERENCE TO THE RELATIVE SIZES OF THE THREE ZILLAS INTO WHICH THE BRITISH DISTRICTS IN THAT PROVINCE ARE DIVIDED, AS COMPARED WITH THE OLDER ZILLAS OF THE BOMBAY PRESIDENCY; ACCOMPANIED BY AN EXPLANATORY MAP; ALSO AFFORDING A BRIEF REVIEW OF THE MODE IN WHICH THE CRIMINAL ADMINISTRATION OF SIND IS CONDUCTED.

Submitted to Government on the 29th November 1853.

SKETCH MAP of SINDH
SHIKARPOOR
H. H. MEER ALI MORAD
HYDERABAD
Alamdaggar
Hyderabad
KURRACHEE
Sunil
The Kurachee Collectorate
Hyderabad Dt
Shikarpoor Dt
Meer Ali Morads territory

ROUGH NOTES ON SIND.

The Province of Sind consists of three Collectorates (Shikarpoor, Hyderabad, and Kurachee), the extent of which is as follows:—

Shikarpoor Old Districts	6,120	square miles.
Districts resumed from His Highness Meer Ali Moorad, for the most part attached to Shikarpoor, about	5,412	„
Total	11,532	„
Hyderabad*	30,000	
Kurachee*	16,000	„

Total of square miles in the British Districts in Sind, including the territory resumed from His Highness Meer Ali Moorad in the year 1852. 57,532 square miles.

The area of the whole Province of Sind, including the territory remaining to Meer Ali Moorad, is estimated at 60,240 square miles. Comparing this with the area of the older Zillas of the Bombay Presidency, it will be seen that the three Sind Zillas of Shikarpoor, Hyderabad, and Kurachee collectively exceed in area all the twelve older Zillas of the Bombay Presidency, and the island of Bombay, put together.

	Sq. Miles.
1, Surat	1,629
2, Broach	1,319
3, Ahmedabad	4,356
4, Kaira	1,869
5, Khandesh	9,311
6, Tanna	5,477
7, Poona	5,298
8, Ahmednuggur	9,931
9, Sholapoor	4,991
10, Belgaum	5,405
11, Dharwar	3,837
12, Rutnagherry	3,964
13, Bombay	18
Total	57,405

* Since this measurement was recorded, the large tract of country comprising the East Delta has been transferred from Hyderabad to Kurachee, but the aggregate of the two Zillas remains the same.

The relative proportions of the Bombay and Sind Zillas are, perhaps, better shown by the annexed sketch, on which I have drawn the three Sind Zillas, and within their area have protracted, on the same scale, six of the Bombay Zillas, including the three largest, and a portion of a seventh; still the unoccupied area within the limits of Sind affords, it will be seen, ample room for the five Bombay Zillas which are not therein protracted.

Kandesh, Ahmednuggur, Poona, Broach, Surat, Tanna, and part of Sholapoor.

Ahmedabad, Kaira, Rutnagherry, Belgaum, and Dharwar.

The concentric circles in the accompaning map, drawn at intervals of twenty-five miles, show the distances in the case of each Zilla from the head quarter station: tabulated they give the following results:—

The extreme portions of the Bombay Zillas are within circles of the following radii, from their respective head quarter stations:—

	Radius in Miles of circle which would include the extreme portions of the Zilla.
Broach	50
Surat and Tanna, each	75
Khandesh, Ahmednuggur, Poona, and Sholapoor, the largest Bombay Zillas	100
Sind.	
Shikarpoor	125
Hyderabad	175
Kurachee	150

From the above facts, it will be evident how greatly the Sind Zillas exceed in area those of the largest class in our old provinces. In population and revenue they rank lower, and would be reckoned in the Bombay Presidency as Zillas of middling, or small size.

* * * * * * * *

In no part of the Presidency could a district similar to Sind, however poor, or thinly populated, be divided into less than three Zillas, or Collectorates.

The people are principally Mahomedans, in the proportion of about four Mahomedans to one of any other caste. This is a peculiarity in which the population is quite dissimilar from that of any part of Bombay. The people are generally peaceable and well disposed, though far less civilized than the generality of Indian populations.

The excellent Police has nearly put a stop to gang robbery, and all the more daring violations of the rights of property; cattle-stealing, however, hardly regarded by the people as a crime, and murders, generally arising from quarrels about women, are commoner crimes than in India, and occur, perhaps, oftener in the thinly inhabited and

almost desert districts near the frontier than in the populous districts on the banks of the river.

As shown in the margin, the area of Sind considerably exceeds, and that of the three Zillas is only a few hundred square miles less than, the area of the whole of England and Wales put together.

	Sq. Miles.
Area of the three Collectorates of Sind, as above shown	57,532
Total area of Sind	60,240
Area of Hyderabad Zilla	30,000
Area of Scotland	26,014
Area of England and Wales	57,813

* * * * * * * *

Under the present system, criminal justice is administered by the following officers, having powers of criminal jurisdiction higher than those of a Magistrate in India :—

Sixteen officers (Deputy Magistrates, generally detached, and in charge of districts) with powers to dispose of all cases requiring less than seven years' imprisonment: all sentences above one year are subject to the confirmation of the Commissioner.

Four officers (three Magistrates, and the Deputy Collector Thur and Parkur) with powers to dispose of all cases (including cases involving capital punishment): sentences of above seven years' imprisonment require the confirmation of the Commissioner; sentences of death, or transportation for life, are subject to the approval of Government.

The Commissioner has no original jurisdiction.

In other words, there are four Courts, with powers equal to those of a Session Judge's Court in the old Bombay Zillas, and sixteen Courts with power to pass, subject to the confirmation of an officer in the province, sentences of the same extent as a Session Judge in Bombay can pass, without necessity for confirmation.

With reference to the crimes which usually come before these tribunals, and the sentences they are in the habit of passing, it may be observed that the limit of seven years' imprisonment is seldom exceeded, except in cases of such gravity as to come under the head of capita offences. In this point of view it may be stated, that there are four Courts for the trial of murders, and other capital offences, and sixteen for the trial of crimes of minor gravity.

This number of courts has not been found by any means too great; indeed, notwithstanding the fact that the powers of the Magistrates' Assistants at detached stations (the Deputy Magistrates) far exceed those of the same rank of officers in India, the great evil most loudly complained of, and one of the great obstacles to a good system of criminal justice, is the immense distances which parties and witnesses have to travel to reach the court of justice.

Hence it will be found necessary to increase the judicial powers of Native officers much beyond what is usual in India. A commencement

has been made, at first in the face of grave doubts on the part of all local officers, as to whether the experiment of vesting the Natives of Sind with judicial powers would succeed; but so marked have been the good effects, that I do not find a single dissentient voice on the subject, and all are desirous to see those powers gradually extended.

* * * * * * * *

The numbers of convictions, in which sentences were passed, which would have been beyond the power of a Magistrate in Bombay, were as follows, in each of the three last years:—

In 1850	301	cases.
In 1851	148	„
In 1852	178	„
Total of three years	627	cases.
Average per annum	209	„

These numbers do not include acquittals, except in capital cases; the total number of *trials* of such cases must therefore have been much greater.

The average numbers of criminal TRIALS, including acquittals, before each of the Sessions Courts of the Bombay Presidency, during the last two years, for which I have the returns, were,—

In 1849	180	cases.
In 1850	219	„
Total in two years	399	cases.
Average for one year	199	„

LISTS OF, AND BRIEF INFORMATION IN REGARD TO,

ALL

CHIEFS AND PERSONS OF IMPORTANCE,

RESIDING WITHIN

THE KURACHEE, HYDERABAD, AND SHIKARPOOR COLLECTORATES.

PREPARED BY

CAPTAIN H. W. PREEDY,
COLLECTOR AND MAGISTRATE OF KURACHEE;

CAPTAIN A. B. RATHBORNE,
COLLECTOR AND MAGISTRATE OF HYDERABAD;

AND

MAJOR P. GOLDNEY,
COLLECTOR AND MAGISTRATE OF SHIKARPOOR.

Submitted to Government on the 31*st December* 1847.

CHIEFS &c. IN SIND.

CHIEFS AND PERSONS OF IMPORTANCE RESIDING IN THE KURACHEE COLLECTORATE.

AT KURACHEE.

SYUD SADIZ SHAH, head Kardar, son of Syud Ismael Shah, formerly one of the principal Nobles of the Hyderabad Court. The family came originally from Persia to Sind, in the reign of Noor Mahomed, Kulhora.

NAOMULL HOTHCHUND, Merchant, ex-Kardar.—His family came originally from Sehwistan, but they have for four generations been located at Kurachee, where they have always been considered the principal mercantile firm in this part of Sind. The services rendered by Naomull and his family to Government have been so numerous and so great, that some years ago he was most strongly recommended by Sir H. Pottinger to the then Governor General, Lord Auckland, for a pension. The change of administration, however, prevented this being granted.

KHEMCHUND WULUD WISSUNDAS, Merchant.—Wissundas, the father of Khemchund, was a shrewd, intelligent man, and did us good service on our first coming to Sind. Khemchund, his son, lacks much of his father's talents, and of his perseverance and attention to business.

HUNSRAJ, KUTCHEE NUGGUN, JOSEE, ASSA MULL, TAROO MOOKEE, and MOOAB ALI KHWAJA, are the principal traders in Kurachee.

IN THE PURGUNA OF GHORABAREE.

JAN MAHOMED, of the tribe of Kulmutee Beloochees, principal Zumindar of the Purguna Peer Dinah, of the Peer Zadah Tribe, Zumindar.

SYUD SUMMA BATHEE, Zumindar.

IBRAHIM BOODAREE, Zumindar.

NIBBOO BOODAREE, Zumindar.

NATHA BUNYA, Zumindar.

MAHUMNA NAREE, Zumindar.

SYATREE PURGUNA.

SYUD ALLA RUKKIL SHAH, Zumindar.

SYUD MEEA SHAH, Zumindar.

SYUD JAN MAHOMED BAHDAEE, Zumindar.

SYUD SHAIKH OOSMAN, Zumindar, and Peer in charge of the Tomb of Peer Putta. A man of great influence in Syatree.

SHAIKH MUMMOO, Zumindar.

CHUTTANEE BUNYA, Zumindar.

SAKRA PURGUNA.

HAJEE KHAN WULUD IBRAHIM KHAN, Kulmutee, Jageerdar.—The Kulmutee or Kurmutee tribe of Beloochees came originally from Hullub, on the frontiers of Persia. On their march towards Sind, they took possession of Kurmut, in Mukran, where they remained for a considerable time, and from which place they derive their name. From Kurmut they gradually extended themselves towards Sind, until, finding themselves strong enough to cope with the Burrey tribe, which then occupied the districts lying between Kurachee and the Hubb river, they crossed that stream, and dispossessed the Burrey of their lands. After their conquest, the Kurmutees settled on the banks of the Mulleer river, whence they extended themselves into Sakra, where their Chief now resides, and where he obtained a Jageer, on condition that when his services might be required he should muster his tribe for the defence of Tatta. The father of the present Chief, Ibrahim Khan, raised his clan, and, joining with the Jokeeas and Noomreeas, threatened to attack our camp in 1843, when hostilities commenced. The confederates, however, dispersed without waiting to be attacked, on a smaller force moving out against them. This being one of the old Sindee Tribes, His Excellency the late Governor re-granted the Jageer, on the death of Ibrahim Khan, to his son Hajee Khan, and his six brothers, free of the deduction of one-fourth which is paid by all other Jageerdars on their lands being re-granted. The Kurmutee tribe can muster about four hundred men.

KABOOL WULUD JAFFER, formerly Urbah, or Chief Zumindar of Sakra.

SYUD RAJ MAHOMED, Zumindar.

DEWAN SOOJAN SING, Zumindar.

CHUTTA BHOOKHERA, Zumindar.

WULEE MAHOMED LUGAREE, Jageerdar.

MUNDEE RAM, Zumindar.

IN GARKA.

SYUD LOOTF ALI SHAH, and his brother ALI BUKSH; the former Kardar of Syatree, the latter of Sakra.

Zumindars: SHAIKH GOOL MAHOMED, AIL BUNYA, MEER ALI, Jam, or Chief of the Jokeeas.

The Jokeea tribe is of Rajpoot origin; they formerly occupied a mountainous district named Kungara, north of Shah Bilawul, whence about a hundred and fifty years ago they descended to the Valley of the Hubb river, and, as their numbers increased, gradually spread themselves over the lands lying between the Hubb and the Mulleer rivers.

Their first Chiefs were of no celebrity, but in the reign of Goolam Shah Kulhora, Beejar Jokeea, who was a sepoy in the service of that prince, obtained the Chieftainship, and title of Jam, for the following services :—The district of Sakra, including Darajah, and Souree Bundee, was at that time governed by a Hindoo Rana, or Chief, named Arjoon, a man of great bodily strength, and possessing great influence in the Delta. Goolam Shah was anxious to dispossess him of his territories, but having no just pretence for attacking him, he was anxious to have him assassinated. This, however, it was no easy matter to accomplish, as the Rana was noted as a brave and powerful man, and being on his guard, he had constructed a temporary building on an island, to which he repaired every night with a few followers, to sleep. Beejar Jokeea, however, undertook to accomplish his destruction, and having collected about twenty resolute men of his own tribe, he and they swam over at night to the island where the Rana reposed, and making a sudden onslaught, sword in hand, killed him and all his followers, before they recovered from their surprise.

Goolam Shah, on hearing of his success, seized upon the Rana's lands, and appointed Beejar Jam of the Jokeea tribe; and the latter, having obtained great renown by his exploit, easily obtained an acknowledgment of his supremacy from the whole tribe. Being of a restless, intriguing disposition, Jam Beejar soon contrived to involve himself in quarrels with his neighbours: the Kurmutees he dispossessed of the Valley of the Mulleer river; having gained a victory over the Noomreeas near the Hubb river, he compelled them to move further north, and he and his followers occupied the whole of the lands lying between the Hubb and the Gharra Creek.

Jam Beejar was succeeded by his son Moorad Ali, whose son, Meer Ali, is the present Jam (1847). In the beginning of February 1843, the Jam was directed by the Ameers to muster his tribe, and, in conjunction with the Kurmutees and Noomreeas, to occupy the town of Kurachee,

and, if possible, to drive the British out of their camp. The Chiefs assembled their men, but the news of the victory at Meeanee so damped their ardour that they did not dare to approach within forty miles of Kurachee.

After the victory of Hyderabad, the Jam came in and made his Salaam, and the Jageers which he had held under the Ameers were restored to him. In addition to these Jageers, the Jam had the privilege of levying customs and transit duties on all merchandize passing from Kurachee to Tatta; on all imports and exports at Gharra, and a rupee per maund on all the ghee manufactured in the districts occupied by his clan. He also claimed the spirit contract at Gharra, which, since the conquest, amounted in value to between two and three thousand Hyderabad rupees per annum. All these privileges and claims were conceded to him, and he enjoyed the proceeds arising from them, amounting to about Rs. 6,500 per annum, until the abolition of the customs and transit duties, when, at his request, and as compensation for the loss he sustained, a Jageer of 8,000 beegas was granted to him in Garka by his Excellency Sir Charles Napier.

The Jam is, however, still dissatisfied, on account of His Excellency having refused to grant him the whole of the district lying between the Hubb and the Gharra Creek, on the east and west, and between Cape Monse and the mountains whence the Mulleer river takes its rise, on the north and south, a space of about *three thousand square miles!* to which he has no manner of claim beyond that of occupancy by his clan at the time of the conquest.

Since the Jageer in Garka was granted to him, I have also discovered that the liquor contract at Gharra belonged properly to his nephew, Chakur, whose Jageers were forfeited on account of his neglecting to make his Salaam prior to the 24th May 1844. The Jam has therefore received 2,500 beegas in excess as Jageer, beyond what he is entitled to. This fact has lately been brought to my notice by Chakur. As the land had been made over to the Jam before this was known, I would not recommend its resumption, especially as the Jam is an old man, and without heirs. On his death, the whole of his Jageers will revert to Government. In addition to the Jageer in Garka, the Jam possesses a Jageer in the Ghorabaree Purguna, and at Binda, in the Hyderabad Collectorate.

BERONATH OF TATTA.

SYUD NUJJUF ALI SHAH, Zumindar.

SALEH MAHOMED, Zumindar.

LAIK DINNA, Zumindar.

GOOLAM HOOSSEIN, Moonshee.

PEETAMBERDAS, Moonshee.
SYUD SABUR ALI SHAH, Sucklaee.
SYUD NUSSEH SHAH, Mulkbaner.
SYUD TAJ MAHOMED, Sherazee.
SYUD BAKUR ALI, Madnoee.
SYUD ROSHUR ALI, Madnoee.
ASSUN WULUD GUNDA, Merchant.
ALI BUKSH, Merchant.
DOORA PUNJAUBEE, Shroff.
KHEMCHUND WULUD FITTOK, Shroff.
JETOO CHOWDRY, Bhatia.
KAZEE YEBYAH.
KAZEE ABDOO RAHIM.

SEREE PURGUNA.

HAJEE HILLYA, Zumindar.
FUKKURCHUND, Zumindar.
GOOLAM LA, nephew of MEER ALI JAM, Jageerdar.

SONDA.

MOOLLA SIDIZ, Zumindar.
MOOLLA GOOLAM HOOSSEIN.

JERRUK.

ALLOO JERRUK, Zumindar.
HASHIM JERRUK, Zumindar.

KOTREE.

SYUD MAHOMED SHAH.
SYUD MOOLANA.

MALIK AHMED KHAN, Jageerdar, and Chief of the Noomurdee, or Noomreea clan. This Chief can trace back his descent through fifteen generations. The tribe appears originally to have been of Rajpoot origin. The first of the family whose name has been recorded was Essub Khan, who, accompanied by his eight brothers, set forth from Rajpootana, and after many adventures arrived at Kedje, in Mukran, where they were well received by the Chief of that place.

After sojourning for some time at Kedje, the Noomreea or Noomurdee (literally nine men) brothers assassinated the Chief of the place, on account of a gross insult offered to the elder brother by the latter. In

consequence of this, they were obliged to fly the country, and they returned to the western frontier of Sind, where they settled and intermarried with the inhabitants of the country. In a few years they became a very numerous and powerful tribe, and gradually obtained possession of the whole of the hill country lying between the Pubb Mountains and the Indus on the east and west, and between the Mulleer and Bharun rivers on the north and south. For many years fierce contests were maintained between them and the Khosas; but the latter were eventually driven beyond the Bharun river. This happened about seventy years ago, since which time the Noomreeas have held undisturbed possession.

AHMED KHAN, the present Chief, is an old man of about seventy-five years of age. He was highly esteemed by the Ameers, who did him the honour of marrying two ladies of his family,—Meer Noor Mahomed married his sister, and Meer Kurrum Ali married one of his daughters. He has three sons,—Sobdar, Pahai Khan, and Izzut Khan. He has also another daughter, married to the Jam of Beila, whose sister is married to his eldest son Sobdar. He generally resides at Humlanee, in the hill country, where his brother, Mahomed Khan, resides with him. Ahmed Khan has had the good sense to relinquish his claim to all the hill lands occupied by his tribe, which are lying waste, in consideration of which Sir Charles Napier granted him in Jageer the whole of the land which he or his people had cultivated in the hills within the last five years, amounting to 2,500 beegas.

This Chief also possesses extensive Jageers near Kotree and Ryla, in Ghorabaree. He formerly enjoyed the privilege of collecting customs and tolls on the river at Kotree. On the abolition of customs, he received a grant of 600 beegas of land near Boodapoor, as compensation for the loss of his customs and tolls. The village of Kotree, and the gardens near it, formerly belonged to Ahmed Khan, but the latter being required for Government purposes, the Chief readily relinquished them, and obtained other gardens above and below Kotree in exchange.

SOBDAR KHAN, eldest son of Ahmed Khan, usually resides at Kotree. The Noomreea tribe is still divided into nine different families, who intermarry with each other, and with the Jokeeas.

Four Chiefs of this tribe still levy Mith, a kind of blackmail, on all merchandize passing between Sehwan and Kurachee, and between Kurachee and Kotree, by the hill routes. Their names are MEER KHAN and JOORNA KHAN, who reside at Dooba, near the Bharun river; and DHEEGEE KHAN and MOOJEED KHAN, who reside at Dummaj. The rates at which Mith is paid to these Chiefs is three annas per camel-load between Sehwan and Kurachee, and one anna and a half between Kurachee and Kotree and *vice versâ*. In consideration of this Mith, the

Noomreea Chiefs guarantee the safety of the whole of the merchandize, camels, and attendants, and, should anything be lost, are bound to make it good. They detach two or more of their followers as guides with each Kafila, who receive two rupees each for the trip between Kotree and Kurachee, and four rupees each between Sehwan and Kurachee. These guides are expected to supply the travellers with wood and water on the march.

IN BADA.

ALI BUKSH, Jageerdar.

IN RYLA.

ALI, Zumindar.
BOOLAT KHAN, Jageerdar, cousin of Ahmed Khan, Noomreea.
JEENUD KHAN, son of ditto.
KULKUMEAH, Zumindar.
WUDDERA BEG, of Bada, Zumindar.
WULLEENAH BEG, of Bada.
TAJ MAHOMED, Peer Zada of Oonerpoor.
JAM SHORAH, of Boodapoor.
NOOR MAHOMED.
MULLOO and KANOTE NUDDERAH.

IN MAHAJANDA.

SHAH MILL KUTCHEE, Zumindar.
MAHOMED MAHAJUNDA, Zumindar.
MAHOMED OOTERA, Zumindar.
EYDAS BUNYA, Merchant.
NUPPAREE WULUD DOOLENA, Merchant.

IN LUKKEE.

SYUD GOOL MAHOMED SHAH,
SYUD SALEH MAHOMED SHAH,
SYUD ALI AKBAR SHAH,
SYUD CHUTTUN SHAH, of Sunn,
SYUD SHAHBOODEEN, of Bumbera,
SYUD BANOO SHAH, of Amree,
SYUD OOMED ALI SHAH, of Tatta.
} Zumindars.

IN SEHWAN.

SYUD GOOMUN SHAH, } In charge of the Tomb of Lall Shahbaz. } Zumindars.
SYUD PURRIL SHAH, }

KAZEE MAHOMED.

SHAIKH NIBBUNDA, } Treasurers at the Tomb of Lall Shahbaz.
SHAIKH WULWOO, }

CHOTHRAM, Head Kardar, formerly confidential Moonshee of Meer Nusseer Khan.

SHAMDAS, Bunya.

LALOO, Shroff.

REHWA, Shroff.

LALLA JEYTAMUND GOOLABROY RESURDAS, of the Ranajee Tribe.

IN JANGHAR.

SYUD KAMI SHAH, Zumindar, formerly Head Kardar of Sehwistan, under the Ameers' Government.

MEERZA BAKUR, formerly a confidential servant of Meer Shahdad.

BILLUND SHAH, } Zumindars.
BUDDER SHAH, }
HYDER SHAH, }

BHAWUL KHAN RIND, } Jageerdars.
GOOL MAHOMED RIND, }
SYUD KUSBUR ALI SHAH, }

IN BOOBUK.

MUGDOOM GOOLAM HYDER, } Zumindars.
MUGDOOM FAZUL MAHOMED, }
NUSSEER MAHOMED, }
YAR MAHOMED YAMATEE, }
PEER MAHOMED YAMATEE, }
BHOEE KHAN JAHEEJEE, }
BHOOL CHUND, }

IN SAMTANEE.

SYUD MEEA SHAH,	Zumindars.
SYUD ALI MAHOMED SHAH,	
SYUD GOOLAM MOORTEZA SHAH,	
SYUD NUSSEER MAHOMED,	
SYUD KADUR BUKSH, of Bhaw,	
SYUD SHERE MAHOMED, of Gheir,	
SYUD ALI MAHOMED, of ditto,	
SYUD GOOLAM MAHOMED, of ditto,	
SYUD DUNNEE BUKSH, of ditto,	
SYUD MUJUD ALI SHAH, of ditto.	
SOOKYA CHUNNA,	
KURRUM ALI SHAH,	
MEER MAHOMED LORA,	

IN DADOO.

MOOREED PHARVEE,	Zumindars.
GHIBUR POWAR,	
PANDEE MEHMUN,	
WULLEEDAD POWAR,	
AHMED SHAH SYUD,	
SYADAD MUGSEE,	
SULYMAN SUBZUL,	Jageerdars.
JAN MAHOMED,	
GOOLAM NUBBEE,	
SHERE MAHOMED,	
ALLADAD,	
JAFFER KHAN, Lugaree,	

IN PUTTEE.

DEWAN HEERANUND,	Zumindars.
CHUNDEERAM,	
GUFFOOR ALI POTAH,	
MAHOMED POTAH,	
SHURRUF POTAH,	
DATOO JULBANEE,	
SOOMAR ALI POTAH,	

IN KURMPOOR.

FAKEER MAHOMED MUDDERAH,	Zumindars.
BAKUR OTAH,	
WUDDYA POWAR,	
LALLCHUND BUNYA,	
GOLOO POWAR,	
BUCHUL CHUNNA,	
JAFFUR CHUNNA,	

IN WHICHOLA.

SYUD GOOL MAHOMED SHAH,	Zumindars.
SYUD AHMED SHAH,	
SYUD KADUR BUKSH,	
ABDOOLLA POWAR,	
ISMAEL POWAR,	
JULLAL KHAN, Nizamanee,	*Jageerdars.*
KUMAL KHAN, Nizamanee,	
KASSIM JUMALEE,	
MOORAD ALI, Lugaree,	
DUMMA LUGAREE,	
MAHOMED KHAN, Lugaree,	
AHMED KHAN, Lugaree,	
GOWAR KHAN, Lugaree,	
ALLA MAHOMED, Lugaree,	

IN KHODABAD.

GOOL MAHOMED, Mugreyah,	Zumindars.
ABDAH BRAMANEE,	
MITTA POWAR,	
SYUD SHAHBURDEEN,	
SYUD ABOO TALIH,	

IN MURKAPOOR.

WULEE MAHOMED, Bougaree,	Jageerdars.
ALI MAHOMED, Bougaree,	
MOOSA KHAN, Jumalee,	

IN KACHA.

BUKSHA KHAN, Jumalee,	Jageerdars.
MOORAD KHAN, Lugaree,	
MULLAR KHAN, Lugaree,	
ISMAEL KHAN, Lugaree,	
GOOL MAHOMED, Lugaree,	
SHAHDAD JUMALEE, Lugaree,	

The Rhuids are considered the Head of the Belooch Tribes. These tribes first became powerful under YAR MAHOMED, Kulhora, whom they assisted in conquering the Powar Tribe, who then held dominion in Sind. The conquest was effected with such ease that Yar Mahomed directed a number of clubs to be suspended in front of his tomb, as a memorial of his having conquered the country with clubs alone. The clubs remain suspended to this day in front of his tomb at Khodabad. The Belooch Chiefs remained faithful to the Kulhoras until Surfuraz Khan outraged the feelings of Futteh Khan, Head of the Talpoor Tribe, by demanding his daughter, who was engaged to Goolam Ali Talpoor in marriage. The Talpoors took up arms to revenge the insult, and the result is a matter of history.

LIST OF ALL CHIEFS AND PERSONS OF IMPORTANCE RESIDING WITHIN THE LIMITS OF THE HYDERABAD COLLECTORATE.

No.	Tribe.	Names.	Number of Beegas of Land held by each Party.	On what Tenure held.	Remarks.
1	Talpoor, Shadadanee.	Meer Beejar Khan ..	221,709	Free.....	Lineal descendant and representative of Beejar, murdered by the Kulhoras in 1778. Has also large estates on the other side of the river. A quiet, gentlemanly man; bears an excellent character.
2	Ditto	Meer Goolam Shah.	31,176	Paying 2 annas per beega....	Cousin of the above. Half his estates were confiscated on conviction of forgery of a Sunud purporting to grant lands in Chunnijah. Has considerable lands on the other side of the river.
3	Ditto	Meer Fuzool Ali ..			Brother of the above; their estates are held in co-partnership. They are not held in high esteem, and are very avaricious.
4	Ditto	Meer Mahmood	142,678	Free.....	Younger brother of the Beejar who was murdered by the Kulhoras. Very old and infirm, and has quite retired to the seclusion of his family. He bears a high character. Has lands in the other Collectorates.
5	Ditto	Meer Ahmed Khan Shadadanee.	10,950	Free.....	Eldest son of the above. A quiet man, of unassuming manners, and much respected.

6		Ditto	MEER JUHAN KHAN....	Some land in Shadadpoor.	Free.....	Brother of the above. His dissipation, and consequent involvements, have of late totally deprived him of the consideration due to his rank. Has lands in the Kurachee Collectorate.
7		Ditto	MEER ALI MAHMOOD ..	13,839	Free.....	A quiet man, of no remarkable character; son of Meer Ahmed Khan.
8		Ditto	MEER ALI BUKSH.....	441,312	Paying one-fourth.	Son of Meer Goolam Shahwanee, who was killed at Meeanee. Chief of Mahomed Khan-ka-Tanda, which was named after his grandfather. Was very young when the British took Sind, and has grown up free from prejudice; bears an excellent character. Has lands in the Kurachee Collectorate.
9		Ditto	MEER AHMED KHAN SHAHWANEE.	194,606	Free.....	Cousin of the above. Stands very well, but is addicted to the bottle, and neglects his lands.
10		Ditto	MEER BOODA.....	113,648	Free.....	Cousin of the last. A quiet man; of good character.
11		Ditto	MEER MAHOMED HUSSUN.	39,108	Free.....	Cousin of the last. A very good man in his way, but hopelessly involved in debt.
12		Ditto	MEER MAHOMED KHAN KHANANEE.	93,081	Free.....	The head of the Khananee branch of Talpoors; resides at Jann Halla. A quiet man, of good character, but reduced to a state of approaching imbecility, from excess in opium. Has, besides, lands in the Kurachee Collectorate.
13		Ditto	MEER AHMED KHAN KHANANEE.	193,826	Paying one-fourth..	A very good, young boy, cousin of the above; son of Meer Jan Mahomed Talpoor, who was killed at Meeanee. The father was the leader in, and great promoter of, the disturbances that ended in the conquest, but bore a high character among his people.

92*

No.	Tribe.	Names.	Number of Beegas of Land held by each Party.	On what Tenure held.	Remarks.
14	Talpoor, Shadadanee.	Meer Shere Mahomed.	55,274	Free.....	Cousin of Meer Mahomed, and uncle of Meer Ahmed Khan. Is much liked by the Beloochees, and bears a good character; but is unfortunately entangled in a low connection, which puts him at constant feud with his relatives, and much diminishes the respect that would otherwise be paid to him.
15	Ditto	Meer Moobaruk Khan.	7,290 6,660	Free..... Pays one-fourth.	Cousin of the above. His father was killed at Meeanee. He is a quiet boy, of good disposition, apparently.
16	Ditto	Meer Mahomed Ali Khan.	11,290	Free.....	Uncle of the above. A quiet man, of no remarkable character.
17	Ditto	Meer Khan Mahomed.	82,284	Free.....	A man of good character, with the name, however, of being a little grasping. Was one of the chief leaders in the commotion which ended in the conquest, but since then has been the devoted servant of this Government, in which, however, he has not been unmindful of his own interest. Has large estates on the other side of the river. His aunt is mother of the ex-Ameer Meer Sobdar.
18	Ditto	Meer Booda.....	....	....	Brother of the above. A quiet man, of no remarkable character. Is co-partner in his brother's lands.

19	Ditto	....	MEER FUTTEH KHAN ..	4,000	Free.....	Brother of the above. A rude, boisterous gentleman, who thinks of nothing but the bottle, and Shikar.
20	Ditto	....	MEER GOOLAM MAHOMED.	64,172	Free.....	Maternal uncle of the above. A quiet man, of no remarkable character.
21	Ditto	....	MEER ABDOOLLA	27,479	Paying one-fourth..	A quiet, gentlemanly man, of considerable ability, and much respected in his neighbourhood; now Kardar of Meerpoor. His father, who was nearly related to Meer Shere Mahomed of Meerpoor, was killed at Meeanee. He is far from wealthy.
22	Ditto	....	MEER RAJA	22,806	Free.....	Father-in-law of the ex-Ameer Shere Mahomed of Meerpoor. A quiet man, of good character.
23	Ditto	....	NUWAB MAHOMED KHAN TORAH.	41,135	Free.....	Formerly bore the name of the fifth Ameer of Sind, and is certainly to this day the man of the greatest influence in it. Bears a high character among all classes, not, however, without the imputation of having used his power too much to his own profit, and the aggrandisement of his family. He is an obedient subject, but does not affect to love the change. He has, however, made himself very useful under our Government, from which his great object is to obtain a guarantee for the descent of his Jageers to his daughter, who is his only child. In his habits he is a very free liver. Has valuable lands in the other Collectorates, and cultivates large Ryutee lands.
24	Ditto	....	DOST ALI KHAN TORAH.	31,690	Free.....	First cousin and brother-in-law of the above; son of the Khyr Mahomed mentioned by Dr. Burnes as Chief Minister when he visited Sind. A clever man, of quiet

No.	Tribe.	NAMES.	Number of Beegas of Land held by each Party.	On what Tenure held.	Remarks.
					habits; is married to a daughter of the Nuwab Ahmed Khan Lugaree, and his son is betrothed to the daughter of the abovenamed Nuwab Mahomed Khan Torah.
25	Talpoor, Shadadanee.	SHERE MAHOMED TORAH.	18,806	Free.....	Elder brother of the above, but of little consideration. He is a quiet, well-behaved old man, but as the distinction of the Torah family is entirely personal, he never had any influence. He is now Kardar of Wangeree.
26	Ditto	BHAG ALI KHAN TALPOOR.	17,750	Free.....	A man of no consideration, notorious for his former addiction to the most infamous species of debauchery, and as having been a great Shikara; on the latter account was patronised by Meer Nusseer Khan.
27	Bhogaree.....	AHMED KHAN	5,666	Free.....	A quiet man, of gentlemanly habits; held power as a Mooktearkar in the Meers' time.
28	Bhagranee	RANJA.....	5,991	Free.....	A man of no remarkable character. A Belooch Chief.
29	Nizamanee	WULEE MAHOMED.....	40,841	Paying one-fourth .	Lives near Shadadpoor. A Sirdar among the Nizamanees, of no remarkable character. His father was killed at Dubba.
30	Ditto	GOOLAM OOLLA.....	27,938	Ditto	The Chief of a tribe of the Nizamanees. A boy, of no remarkable character.

31	Ditto	Raim Khan	24,843	Ditto	Of no remarkable character.
32	Ditto	Goolam Mahomed ..			A man of no remarkable character.
33	Ditto	Lall Khan	9,392	Free.....	A man of rank among the Nizamanees. Bears a high character for strong sense and fair dealing, and is much respected.
34	Ditto	Alladad	7,500	Paying one-fourth..	Son of Goolam Hussein, Chief of the Ismaelanee Nizamanees. A young man, of no remarkable character.
35	Ditto	Ali Buksh (Kurmanee)..	6,068	Free.....	Of no remarkable character.
36	Ditto	Gawar Khan	5,780	Free.....	Of no remarkable character.
37	Lugaree	Nuwab Ahmed Khan Lugaree.	Land in Shikarpoor Collectorate.	Paying one-third ..	Has lands on the other side of the river, paying a small rent. Was of the highest consideration and power under the ex-Ameers. Is of a venturous disposition, and remarkably plain-spoken. Bears an excellent character, but with the fault of great haughtiness. He was therefore respected and feared, rather than loved, by the rest of his nation.
38	Ditto	Mahomed Khan Lugaree.	Land chiefly in Shikarpoor Collectorate.	Ditto	A younger brother of the above. Bears an excellent character, and is clever and well bred. Held an office of great power in the Meers' time. These are sons of the Wulee Mahomed Lugaree spoken of by Burnes as the Minister in his day.
39	Ditto	Goolam Mahomed (Koomburee Walla).	16,111	Free.....	A Belooch leader of repute, with Meer Jan Mahomed Talpoor, Meer Khan Mahomed, and Yuktyar Khan Lugaree, the great instigator of the measure adopted by

No.	Tribe.	Names.	Number of Beegas of Land held by each Party.	On what Tenure held.	Remarks.
					Meer Nusseer Khan, which led to the latter's dethronement. Goolam Mahomed is of rude, boisterous manners, but of a good disposition; more liberal than his means admit of, and much liked, but rather involved. His present Jageer was conferred by the Supreme Government.
40	Lugaree	Yekhtyar Khan	15,977	Free	A man who has all the rudeness of the above, without his virtues; for the rest he is not remarkable in any point of view, though he held a high position under Meer Sobdar: the selections, however, of that Meer were not considered as any proof of talent or worth.
41	Ditto	Goolam Mahomed	10,751	Free	A plain, rude Chief, of no remarkable character.
42	Ditto	Goolam Shah	9,689	Free	A very quiet, gentlemanly, sensible man, and bears a most excellent character among all. He is a first cousin of Nuwab Ahmed Khan Lugaree, and was held in high consideration in the Meers' time. He is now much reduced in circumstances, and is Kardar of Wallassa.
43	Ditto	Jan Mahomed	8,000	Free	Brother of the above. Considerably inferior to his brother in talent, but in other respects the remarks apply. He was Kardar of Jatee, and is now Buttaidar of Maryar.

44	Ditto	Goolam Moostafa ..	4,825 500	Pays one-fourth. Do. 2 as. per bga.	Nephew of the above. Quite a child, but gives every promise of future excellence.
45	Ditto	Hoossein Khan (Bheemanee).	5,021	Free.....	A very good, quiet man. Bears an excellent character, but is much straitened in his means. He generally has one of the best Buttaidarships every season, the emoluments of which are of much assistance to him.
46	Murree.....	Fazil Khan			Father-in-law of the ex-Ameer Meer Nusseer Khan. A quiet old man, of amiable disposition, and bears an excellent character.
47	Ditto	Mohobut Khan	17,824	Free.....	A cousin of the above, and co-partner in his Jageer. Of no remarkable character.
48	Ditto	Sorab.....			A cousin of the above, and co-partner in his Jageer. Of no remarkable character.
49	Ditto	Kureemdad			A cousin of the above, and co-partner in his Jageer. Of no remarkable character.
50	Ditto	Mahomed Ali, and his Sons.	13,000	Free.....	A quiet, gentlemanly Chief; of much consideration in his own neighbourhood.
51	Ditto	Goolam Hyder	12,958	Free.....	Of no remarkable character.
52	Ditto	Jummal Khan	....	Free.....	The Chief of Adam Khan-ka-Tanda; a sharer in the Jageers of Dud Khan. A quiet, respectable old gentleman.
53	Ditto	Dao Khan.....	11,026 1,000	Paying one-fourth.. Free.....	A young man, of no remarkable character.
54	Ditto	Ali Khan	9,651	Paying one-fourth..	Of no remarkable character.

No.	Tribe.	Names.	Number of Beegas of Land held by each Party.	On what Tenure held.	Remarks.
55	Murree.....	Taja	7,166	Free.....	Of no remarkable character.
56	Ditto	Chupper Khan.....	6,106	Free.....	Of no remarkable character.
57	Ditto	Belooch Khan.....	5,200	Free.....	Of no remarkable character.
58	Jumalee	Dato	15,343	Free.....	Chief of a branch of the Jumalees. Of no remarkable character.
59	Ditto	Goolam Ali	5,103	Free.....	A Sirdar, of no remarkable character.
60	Ditto	Roostum.....	4,049	Free.....	A Sirdar, of no remarkable character.
61	Khokur	Bheero	27,074	Paying one-fourth..	Chief of the Khokurs; lately succeeded his father. Of amiable disposition, and good character, but of straitened means.
62	Ditto	Khan Mahomed	23,050	Free.....	Cousin of the above. An old Chief, of excellent character.
63	Ditto	Dingana.....	7,500	Free.....	A quiet, sensible old man, of good character, who has seen a good deal of the world for a Native of Sind.
64	Ditto	Roostum	5,000	Free.....	Of no remarkable character.
65	Kuttyan	Goolam Mahomed, with his Sons and Brothers..	67,000	Free.....	Chief of the Kuttyans. Held in high estimation by his former master. Bears a good character among the people, and a Sirdar of amiable disposition. Has lands on the other side of the river.

66	Ditto	Mahomed Hoossain..	42,770	Free.....	Cousin of the above. Of no remarkable character.
67	Ditto	Muzzur Ali			Of no remarkable character.
68	Ditto	Goolam Shah	12,099	Free.....	Cousin of the above. Of no remarkable character.
69	Ditto	Mahomed Arif.....	6,272	Free.....	Cousin of the above. Of no remarkable character.
70	Jokhia.....	Jam Mehur Ali	16,000	Free.....	Chief of the Jokeeas; lives near Kurachee. Is an old man, who bears a very good character, but is greatly involved in debt. Has large unproductive possessions in the Kurachee Collectorate.
71	Noomreea	Mullika Ahmed Khan.	6,947	Free.....	A quiet old Chief, who lives in the hills on the other side of the river. Chief of the Noomreeas. Is respected by the people of his neighbourhood. Holds large, but unproductive possessions, on the other side of the river.
72	Kismutghar.....	Mahomed Yoosoof....	16,019	Free.....	Foster-brother of the ex-Ameer Meer Mahomed, and joint Mookteearkar of that Meer, with Nuwab Mahomed Khan Torah. Is very wealthy, but plain and unassuming in his habits, and bears a high character for good sense and integrity.

Note.—Besides the above, there are members of the family of the late Minister, Ismael Shah, who are all very gentlemanly, sensible men, but are wearisome in their self-laudations, and denunciations of the Belooch Chiefs of Sind. The most practicable of the family, I think, is Sadik Shah, now holding the chief Native appointment in the Collector of Kurachee's Office. They would any of them very well fill the appointment of Ameen, Moonsiff, or Native Deputy Collector, in Sind, if there were any such offices; but as it is, they are too high for Kardarships, have no Jageers worth noticing, and all high offices are held by Europeans.

CHIEFS AND PERSONS OF IMPORTANCE RESIDING IN THE SHIKARPOOR COLLECTORATE; WITH A BRIEF OUTLINE OF THE HISTORY OF THAT TRACT OF COUNTRY PRIOR TO THE CONQUEST IN 1843.

Upper Sind, at the period of the invasion of Hindoostan and the sack of Delhi by Nadir Shah, formed part of the Soobah of Mooltan. On the dismemberment of the Empire of Delhi, the portion termed Mogulee, comprising Sukkur, Bukkur, and Shikarpoor and its dependencies, was annexed to the Dooranee Kingdom founded by Ahmed Shah Abdalee, an officer of Nadir Shah, whose capital was Kabool. Up to A. H. 1225 (about A. D. 1809), the Afghan possessions in Sind extended on the north-east to Kusmore, on the Mooltan frontier; north to Raghan, and the Desert; west to Nowshera Abra; and south to Mundajee, on the Larkhana river.

In A. D. 1809 the Talpoor rulers of Sind began to take advantage of the distracted state of the Dooranee Empire; and first Meer Sorab of Khyrpoor obtained, partly by intimidating and partly by corrupting the Puthan Governor Badul Khan, the cession of the large district of Boordeka, on the Indus.

Badul Khan was replaced by Mahomed Ruza Khan, who ceded to the same Meer the dependencies of Chuck, Mazurcha, and Mahomedabagh, nearer to Shikarpoor.

Meer Sorab of Khyrpoor next surprised Sukkur, landing with his people from the opposite bank, on pretence of paying his devotions at the shrine of Shah Khyroodeen, better known as the present Tiger Mosque. Subsequently Fort Bukkur was similarly wrested, on a like pretence, by Meer Roostum, from the Puthan officer commanding its garrison.

Soon after, Meer Moobaruk forcibly seized on the little districts of Soheja, Kulwary, and Sahukjee, south of Sukkur; and the officers of Meer Roostum took possession of Wuzeerabad and its dependencies, which consolidated their recent acquisitions from the Indus to within nine miles south of Shikarpoor.

Maree, again, was about this time conferred as a religious endowment upon one Syud Jan Shah by the Puthan viceroy, but the Syud shortly made it over to Meer Moobaruk.

The spoliation now began to extend due north of Shikarpoor, by the seizure of Ropah, with Kote Sultan, by a combination of the Hyderabad and Khyrpoor Meers; and lastly, the city of Shikarpoor itself, with all its remaining dependencies, was surprised in A. D. 1832 by Wulee

Mahomed Lugaree, the Wuzeer of the four principal Meers of Hyderabad. On the arrival of Wulee Mahomed Lugaree, he encamped his troops in the Shahee Bagh, half a mile from the Nowshera Gate of the town, and, in reply to a message from Abdool Munsoor, the last Afghan Governor in Sind, he replied that he was on his way to punish the inroads and insolence of the hill robbers. Next morning, he suddenly got under arms, marched boldly upon the city, and made himself master of it with little or no opposition.

From that day the Dooranees ceased to exercise any authority in Sind, but the petty village of Rozan, opposite Minootee, conferred by the late Shah Soojah-ool-Moolk upon the father of the present Khan of Khelat, in return for some troops furnished to him by that prince, still remains in the hands of the Brahoee Chief.

Traces of the old Afghan ascendancy still remain in the Puthan families yet thickly settled in the neighbourhood of Shikarpoor: here they still possess some privileges, such as reduced rents, and the Puttadaree, a rent charge on the proceeds of certain lands and villages, not uncommon in the protected Sikh States in Northern Hindoostan, but I believe peculiar in Sind to the Mogulee districts.

A slight renewal of the connection of the Kabool Princes with Upper Sind occurred thus:—

When Shah Soojah-ool-Moolk, prior to the Honorable Mountstuart Elphinstone's Mission, appeared firmly seated at Kandahar, the Talpoor Ameers presented to his officers, one year, the sum of twenty-seven lakhs of rupees. Finding the Shah grown less formidable, they reduced this tribute to seven lakhs. After Shah Soojah had remained for some years at Loodiana, a refugee with the British, Meer Moorad Ali of Hyderabad in 1831-32 invited him to Shikarpoor, promising to restore to him the Mogulee districts, and also to assist him with a sum of money.

The motive of Meer Moorad Ali, who acted for the whole of the Talpoors of Upper and Lower Sind combined, seems to have been a dread of the growing power of Khorasan, and of the encroaching disposition of Runjeet Sing of Lahore; but by the time Shah Soojah, availing himself of the invitation, was able to reach Shikarpoor (1832-33), Meer Moorad Ali was no more, and Meers Roostum and Moobaruk called upon the Shah to quit Shikarpoor, or they would compel him to do so by force of arms. They accordingly attacked him at Sukkur, where he was encamped with a force, partly levied in Northern Hindoostan and partly composed of the Puthans of Mogulee, who flocked to his standard in great numbers,—a circumstance worth noting, for there are relatives of the present Chiefs of Kandahar and Kabool, Barukzaees, settled here, as well as those more inclined to favour the Dooranee family.

In this crisis, Meer Noor Mahomed, son of the late Moorad Ali, sent, in the name of the other Meers of Hyderabad, Nuwab Bahadoor Khan Khokur, a Belooch of rank, and well liked by the Shah, to request that the Shah would proceed on his expedition against Kandahar. The Shah in reply demanded the cession of Mogulee, and the pecuniary assistance promised by Moorad Ali.

The Hyderabad Ameers, in the name of the whole of the Talpoors, replied, that if the Shah would proceed towards Kandahar, they would pay him a tribute of three lakhs of rupees towards his expenses, and that if he succeeded in establishing himself at Kandahar, they would then restore to him all his former possessions in Sind.

The Shah insisted on seven lakhs, which having extorted, he marched upon Kandahar, accompanied by the Meers' envoy, Bahadoor Khan, and his expedition terminating disastrously, of course the cession of territory was never made, and the covenanted tribute never paid; nor was the connection between the Puthans and the Talpoors renewed until the ill-starred expedition of 1838-39.

With Khelat and Kutchee, the Meers appear to have been usually on friendly terms.

The following is a list of the principal and most influential families in the Shikarpoor Collectorate, and also a memo. of the Meers to whom, at the conquest on the 17th February 1843, the several districts belonged :—

Head of all the Abras, a numerous Sindee tribe: they occupy Nowshera Abra, within eight miles of Shikarpoor, which, though so near the Puthan possessions, never was occupied by them: The town of that name was, indeed, a refuge for merchants from the more grinding tyranny of the Meers. Its walls, built by the famous Wulee Mahomed Lugaree forty years ago, are still in very fair repair.

ALI MURDAN KHAN ABRA, of Turay, sixteen miles south-west of Shikarpoor; has two sons.

Ali Murdan was rated as able to produce some 8,000 to 10,000 men; he holds a Jageer of 1,300 acres. He is a quiet, inoffensive man, occupying himself in agriculture, and has dug a canal above twenty-two miles long since 1844-45. Some of his people are thickly sprinkled west of Larkhana.

Holds three-eighths of the district of Gurhee Yaseen in Jageer, worth nearly Rs. 300 per annum. He is a relative to Dost Mahomed Khan of Kabool, and corresponds with him, and with the Chiefs of Kandahar. He fled on the return of Shah Soojah-ool-Moolk in 1832-33.

ABDULLA KHAN, Barukzaee, of Gurhee Yaseen, eight miles south-west of Shikarpoor; has three sons.

GUDOO KHAN, Dooranee, of Amrote and Aurungabad, seven miles south by west of Shikarpoor; heir his grandson, at Aurungabad. He has a good sized fort, in which he resides; it is in the usual style of mud edifices, but has a double *enceinte*, and is stronger than ordinary.

Uncle of the above. Has a grant at Aurungabad and Amrote of 3,600 acres. He is very advanced in years, being above one hundred years old, yet hale: he states that he was himself one of the officers of Ahmed Shah's army, and had seen Nadir Shah, being twelve years old when that prince died. He sided with Shah Soojah in 1832-33.

WULEE MAHOMED, Chandia, of Gybee Dhera, thirty miles west of Larkhana; has two sons.

Holds the Chandia country, an arid tract west of Larkhana; was rated at 10,000 to 12,000 fighting men, and was a Chief of great power among his clan under the Meers. Has also 2,000 acres in Aliwal, arid land.

In 1842-43 Meer Ali Moorad attacked and seized him, but he was restored to his Jageers by Sir Charles Napier. He is an old man of some sixty-five or seventy.

AHMED KHAN, MAHOMED KHAN, ALLADAD KHAN, Lugarees, sons of the late Wulee Mahomed Lugaree, Prime Minister of Hyderabad, under the four great Meers. He died fourteen years ago; was celebrated as a statesman, warrior, and poet.

Hold Jageers of 6,000 acres in the Larkhana districts. Ahmed Khan was an adherent of, and fugitive with, Meer Shere Mahomed of Meerpoor, but making his submission some twelve months ago, was restored to his Jageer with his brothers. These are Chiefs of great influence, and are Beloochees.

GOOL MAHOMED, Mugsee, of Goodee.

Holds a Jageer of 700 acres in the Mehur district. Considers himself a Belooch, but is a relative of Ahmed Khan Mugsee, a very friendly Chief at Jhull, in Kutchee.

He is a bold, turbulent man, and fought against us at Meeanee, where he lost an eye.

GOOL MAHGMED, Kohawur, of near Nusseerabad, twenty-five miles south-west of Larkhana.

Head of the Kohawur Sindee tribe. He is an influential man, a good farmer, and highly respected, and looked up to by the Zumindars in the Larkhana district.

PEER NIZAM-OOD-DEEN and FIDAH-OOD-DEEN, of Hubeeb Kote; SYUD ABBAS ALI and GOOLAM ALI SHAH, of Sukkur; SYUD MOORAD ALI and AKBAR ALI SHAH, of Roree; sons of Syud Jam Shah.

These all held Jageers, and their families were highly respected by the Meers.

The two latter have lately (1847) been deprived of most of the grants they held in Meer Ali Moorad's territories, that prince not being pleased with their residing in the British districts.

MEER MAHOMED KHAN Talpoor; nephew of Meers Roostum, Moo-

Holds large Jageers at Salihanee and Chinnee, south of Sukkur; at Chodiah, north of Shikarpoor; and at Taree Chinnee, in Roree. He fled with Meer Roostum in 1842-43, and his grants were confiscated, but

baruk, and Ali Moorad, residing under the surveillance of his uncle Meer Ali Moorad.

restored on his submission, and on the security, for his good behaviour, of his uncle Meer Ali Moorad.

He is a man of no character as a prince, a quiet frugal man, unpopular from excessive parsimony, and on bad terms with his uncle, who squeezes him.

KHAN MAHOMED KHAN, Talpoor; resides at Hyderabad.

Holds a Jageer at Khyrpoor, in Baglan, of 3,000 acres.

MEER BEEJAR KHAN; resides at Hyderabad. The Hyderabad Collector's report notices these Meers, and many others of the same family.

Holds a Jageer at Khyrpoor, near Larkhana, of 4,000 acres.

Are Jageerdars, men of consequence formerly, though not now. I mention them as connected with the late reigning family. One of them, Hasun Khan, was Governor of Kurachee under the late Meers, and was deprived of his possessions (for insolence in his office to the British troops in 1838-39) after the conquest in 1843. He has now made his submission, and will, I understand, be reinstated.

The Boorgurees, Talpoors, in the Larkhana and Mehur Deputy Collectorates,

PEER ALI GOHUR, a descendant of a highly respected family of Priests, late of Khyrpoor, but now of Kooria, near Larkhana.

Is a disaffected subject of Meer Ali Moorad, and a refugee since March 1847 in British territory. He was formerly the most confidential agent of Meer Ali Moorad, with whom he has quarrelled of late.

Now in reduced circumstances, but formerly a man of consequence.

BUCHUL KHAN, Tureen Afghan, of Sukkur.

His family were very influential under the Puthans. All Sukkur, and even Roree, belonged to them.

ABDOOL SUMMUND KHAN, Mogul, of Lukkee.

A man of good family, and of influence under the Puthan Government. He is at present Kardar of Lukkee.

His family possessions are now divided among seven brothers, and have lapsed, on being resumed and parcelled out, till they have dwindled to an inconsiderable property.

DILAWUR KHAN, Afghan, of Gosurjee; son of Mouladad Khan. Holds one-twelfth of Gosurjee as Puttadaree.

The father was a man of great influence, and a leading character among the Puthans.

Oboura was ceded to His Highness of Khyrpoor in 1845, but I mention Abdool Khyr because he was a man of very large possessions, and still has large Jageers, if not resumed, as most of Meer Ali Moorad's are.

ABDOOL KHYR, Duhur, of Oboura, and Duhur Ree; holds one-eighth of Oboura, under the Meer.

His family flourished more under the Kulhoras, but had power enough to preserve some of their estates under the Talpoors.

JAMAL KHAN, Puthan, of Wijebal-ke-Tandra: Holds a large Jageer, half of Jumshera, north-west of Gotekee, 7,750 acres.

KADIR BUX, Khosa Belooch, of Khosa-ke-Gote, four miles south of Shikarpoor. Has 125 acres only, the river having encroached on his lands. A soldier under the Meers, and Chief of the Upper Sind Khosas. A well behaved man, but at one time (in 1844) suspected, deprived, and imprisoned, on account of a murder, afterwards proved against other parties.

DIL MOORAD KHAN, Khosa, of Dill Moorad-ke-Gurhee, north of Shikarpoor; Belooch. A good farmer, but a turbulent man, though not much of a soldier. He fled to the hills in 1844-45, and was made a prisoner by Sir C. Napier at Trukkee. He is useful as a man of influence among his Khosas on the border, and farms up to the very edge of the Desert.

NUWAB KHAN, Tureen Afghan, of Zurkhail, ten miles north of Shikarpoor. A fine old man, a farmer; emigrant from above the Bolan Pass. Though many years in Sind, he can speak nothing fluently but Pushtoo. He is chiefly worthy of note as being the father of Alif Khan, a faithful soldier and servant of the British Government, at present Adjutant of the Police in Sind, and, by patent from the Governor General of India, created Khan Bahadoor in October 1847.

MISCELLANEOUS INFORMATION CONNECTED WITH THE DISTRICTS IN THE SHIKARPOOR COLLECTORATE.

Collected by Major GOLDNEY, *and intended to form an Appendix to the preceding Paper.*

Extent, and Civil Authorities.	Districts.	Estimated former Revenue under the Meers.	Average Annual Revenue for the Years 1844-45, 1845-46, and 1846-47.	Number of Kardars.	Average Collections of each Kardar.	Rivers, and principal Canals.	Principal Towns and Villages.	To what Meers belonging prior to the Conquest.
		Rs. a. p.	*Rs. a. p.*		*Rs. a. p.*			
Estimated Area 1,780 square miles. Collector and Magistrate of Shikarpoor.	Shikarpoor.....	2,43,074 0 4	1,53,000 6 4	6	25,500 0 0	Begary. Noorwah. Huzarwah. Sind. Little Begary. Raeeswah. Yaseenwah. And many lesser branches.	Shikarpoor, a large commercial town, estimated to contain 30,000 inhabitants. Also Gurhee Yaseen. Maree. Kote Sultan. Meerpoor. Shahal. Mujan-ka-gote. Khanpoor. Lukkee. Khaee.	Meers Noor Mahomed and Nusseer Khan of Hyderabad; and Meers Roostum and Nusseer Khan, of Khyrpoor, and brothers.
	Nowshera*.....		48,000 0 0	1	48,000 0 0	Sind. Ali Bhar. Ali Murdan Abra. Meerwah. Dilawar. Hyatwah.	Nowshera Abra, now decayed. Wassil. Duroodgiran. Toray. Mundajee.	Nusseer Khan, of Hyderabad.

* Formerly, during the Meers' time, attached to Chandooka District.

Estimated Area 960 square miles. Deputy Collector at Sukkur.

Kusmore	2,893 12 6	2,984 3 2	1	2,984 3 2	Indus.	Kusmore, 300 to 400 inhabitants.	Nusseer Khan, of Khyrpoor.
Sukkur					Indus. ..... Gurung.	Sukkur, now decayed. The population, with that of Bukkur, removed thither from the Fort, may be 1,500 or more.	Nusseer Khan, of Khyrpoor; and Nusseer Khan, of Hyderabad.
Roree.....	1,80,740 13 1	2,35,873 3 2	7	33,696 0 0	Indus. ..... Oomurkus ..	Gosurjee. Jafferabad. Roree, with a population of about 10,000. Taree Chanee. Doobah Wahan. Ali Wahan. Beerary Powar. Munder Dera.	Meers Roostum and Nusseer Khan, of Khyrpoor.
Gotekee.....					Indus. ..... Koray.....	Gotekee. Kadirpoor. Alilpoor. Syudpoor. Nizabut-ka-Tandra. Sultanpoor.	Nusseer Khan, Mahomed Ali, Ali Mahomed, Fazul Mahomed, and Wulee Mahomed, of Khyrpoor.

Extent, and Civil Authorities.	Districts.	Estimated former Revenue under the Meers.	Average Annual Revenue for the Years 1844-45, 1845-46, and 1846-47.	Number of Kardars.	Average Collections of each Kardar.	Rivers, and principal Canals.	Principal Towns and Villages.	To what Meers belonging prior to the Conquest.
Estimated Area 1,750 square miles. Deputy Collector at Larkhana.		*Rs. a. p.*	*Rs. a. p.*		*Rs. a. p.*			
	Chandooka. . . . . * The Nowshera Purguna in the Meers' time formed a portion of Chandooka. Being so near Shikarpoor, it was attached to that division in 1843.	*6,89,459 0 0	3,80,406 8 7	11	34,582 0 0	Indus. Nara. Ghar. Noorwah. Norung. Meerwah. Nalah Datah. Nalah Shah. Heerawah. Nusrutwah. Nalah Maksooda. Beera.	Larkhana, population about 12,000. Kumbur. Nusseerabad. Khyrpoor. Nyadera. Wagun. Rata Dera. Bungool Dera. Bukranee. Pukha.	Nusseer Khan, Noor Mahomed's two sons, Meer Mahomed and Sobdar, all of Hyderabad.
miles. Depy. Collr. at Mehur.	Mehur	2,40,594 5 0	2,46,084 2 2	9	27,342 0 0	Nara. Kukole. Nusseerwah.	Mehur. Cheezapoor. Goza. Mungwanee. Raja Dera.	Meer Mahomed, Sobdar, and Nusseer Khan, of Hyderabad.
	Tigr					Indus. Nara & branches.	Wheer. Thurry. Seeta Naree. Lechur. Badia.	Meer Mahomed's two sons, of Hyderabad.

Estimated Area 1,650 sqr.

Baghlan .....

Indus.
Nara.
Koodun.

Ghulloor.
Khyrpoor.
Kukkur.
Pat.
Moondhur.
Thulla.
Futtehpoor.
Rookun.

Meer Sobdar, of Hyderabad.

MEMORANDA

ON THE

PEARL BANKS AND PEARL FISHERY, THE SEA FISHERY, AND THE SALT BEDS, OF SIND.

BY THE LATE

MR. JOHN MACLEOD,

COLLECTOR OF CUSTOMS AT KURACHEE.

Submitted to Government on the 31*st December* 1847.

FISHERIES OF SIND.

PEARL BANKS AND PEARL FISHERY OF SIND.

In the salt-water inlets along the entire sea coast of Sind, a thin-shelled variety of the oyster exists, producing a seed pearl. It is most frequently found on mudbanks left dry at low tides. The pearl is of very little value compared with that produced by the Ceylon and Persian Gulf Fisheries, the price of the latter ranging from Rs. 1,000 to Rs. 1,500, whilst the former seldom realizes more than Rs. 15 a tola. From the supposition that it possesses invigorating powers, it is used here chiefly as a medicine. The larger grains are occasionally made use of as personal ornaments; the smaller ones to intermix with the valuable Bahrein pearls, in which manner they are kept in bags by the Bombay merchants, as a means of preserving their lustre.

About the latter end of the year 1836 the Ameers of Sind first became aware of the existence of this description of pearl oyster on their coast, by a money tender having been made for the exclusive privilege of fishing them. The banks, called Kenjur, at the entrance to Gharra Creek, were consequently let out for one year for Kashanee Rs. 650. The farmer must have profited well, as in the year following they were let for Rs. 1,300 annually for a consecutive period of two years. Subsequently to operations being commenced, a higher offer was received by the Ameers, who, with that want of faith which characterized them when a prospect of gain presented itself, gave orders for the immediate ejectment of the original holder of the farm. Similar circumstances operating against the second occupant, he also was ejected; and this process continued, until the sum tendered amounted to Rs. 19,000 per annum. The party to whom the farm devolved at this large rent soon discovered that he had entirely over-estimated its value; and by ceaseless importunity got released from his contract. The Ameers then ordered the fishery to be conducted on their own account, until, finding it unprofitable, it was discontinued.

At the close of the year 1839 the Kurachee Harbour (in the creeks adjoining which the pearl oyster is found) was again let for two years,

for Rs. 1,100; six months afterwards other speculators offered Rs. 21,000; it was finally let for Rs. 35,000, the contractors relieving the former occupants, and taking possession of the pearls that had been collected by them. These parties, however, failed, but were made to pay Rs. 20,000. The Ameers, as at Kenjur, took the management of the fishery, which in three months, it is said, realized between seven and eight thousand rupees,—a doubtful circumstance, as after a short trial it was altogether relinquished by them.

When the country became a British possession, the Kenjur Fishery was let by the Collector of Land Revenue for Kashanee Rs. 2,500 for one year, commencing from the 1st August 1843, but the contract was not fulfilled. The following year, the highest offer made was Rs. 2,400, but the fishermen objected to work, alleging that as their gains were regulated by the amount of produce, which was insignificant, they could not earn enough for their support. The contractors appealed to the Governor of Sind, who, deciding against them, their contract ceased. The Harbour Fishery was let out at the same time for Rs. 3,700 per annum, but owing to a misunderstanding of the terms of the contract, it was resumed, and fished by the Collector on account of Government. In one month, the sum of Rs. 2,278 was realized, exclusive of expenses. The fishermen, however, declined to continue the fishery, alleging that they could find no more oysters. It was thought at the time that they had been bribed by the former contractors to make this statement, but experience has since tended to show that it was not altogether incorrect.

In the month of May 1845, I was placed in charge of this source of revenue, and having personally examined the situation of the banks, I found the entire line of coast from Kutch to Kurachee giving evidence of the existence of the oyster. It appearing to me that several spots might be fished with advantage, I engaged boats, and forty divers, but after a month's labour, at what appeared to be the most productive banks, the expenses incurred exceeded the value of the pearls produced.

The Harbour of Kurachee has been twice since that period let out for Rs. 800 and Rs. 1,300: the contractors, however, in each case, after several examinations, found it advisable to suspend operations, under the conviction that the oysters were too few and too scattered to pay the expense of collecting them.

In this conclusion I am disposed to concur, and to express my belief that the power vested (during the time of the Ameers) in the hands of the farmer, of pressing the labour of Mohanees and others, and obliging them to work at a nominal rate of wages, consituted the chief value of the Pearl Fishery.

When forced labour was abolished by Sir Charles Napier, and men were allowed to take service wherever their interests prompted them, this source of revenue at once fell, and although several times attempted to be propped up, by farming it to parties fully qualified to take advantage of all circumstances likely to bring the farm to account, it has failed to repay even the necessary outlay.

This description of oyster is not peculiar to Sind: it is found in Kutch, Kattywar, and on the Western Coast of India, where the shell is used by the Portuguese as a substitute for glass, to admit light.

SEA FISHERY.

The sea fishermen of Sind are a Musulman tribe called Mohanees; they are chiefly resident in Kurachee, and are divided into four classes, namely Kuracha, Lara, Bundree, and Wungara.

Like all such castes on the coasts of India, they are not exclusively engaged in fishing: the coasting vessels are manned by them; and the Wungara class employ themselves in cutting down and disposing of the salt-water jungle, the bark of which is used in tanning, the wood in building, and the leaves as food for camels and bullocks.

During the time of the Ameers, and up to January 1846, the fishery was farmed out. The cesses,* complicated and heavy, were rendered

* The Farmer at Kurachee was allowed to exact the following per-centage cesses on all fish caught:—

I.—On fish of all descriptions, caught inside of Manora Point, duty at the rate of one-sixth of the whole.

II.—Fish caught outside Manora Point, with a hook, and under sixty in number, one-fourth of the total number caught.

III.—If the number of fish caught exceeded sixty, one-eighth of the total.

IV.—On every boat-load of fish exceeding sixty, caught outside of Manora Point, five were selected by the Farmer, under the head of Amlana.

V.—Fish caught in a net outside of Manora Point, and under sixty in number, duty at the rate of one-fourth.

VI.—On fishmaws, extracted from fish caught at Sonmeeanee, Seerkabaree, and Tuyah, which are all of a large and uniform size, duty at the rate of one-sixth of the whole extracted.

VII.—On sharkfins of the value of Rs. 100, an additional value of Rs. 31-4-0 is placed at the time of levying duty, and a duty of 5 pice was then paid to the Farmer on the total sum of Rs. 131-4-0, which amounted to about Rs. 10-4-3 per cent.

VIII.—Ranoos fish, caught outside Manora, if under sixty in number, paid at the rate of one-fourth of the number caught; if above sixty, the whole of the fish caught were divided into ten portions, one and a quarter of which was paid as duty.

IX.—On a boat-load of fish caught near Keemaree, duty at the rate of one-sixth of the number caught.

X.—On fish of all descriptions exported by sea from Kurachee to Bombay, Muskat, &c. if of the value of one hundred rupees, an additional twenty-five rupees was added, and, on the sum

more so by its being left to the pleasure of the farmer to exact payment in money or in kind.

Besides those on fish, there were other cesses,* alike affecting the fishermen. These were head-money on Lascars leaving the port; taxes on charcoal, on bark, and on wood, &c.

The contract sold annually for between four and seven thousand rupees. It has gradually been done away with; the extra cesses having been first discontinued, and, at the close of 1845, the entire system abolished. Since then, fishing vessels have been classed, and licensed, on payment of a fee proportionate to their size.

Up to the period just mentioned, the fishermen were all more or less involved in pecuniary embarrassment, and entirely in the hands of Banian creditors, by whom not only their boats and nets, but even the necessaries of life, were supplied, in consideration of the product of

total of one hundred and twenty-five rupees, duty at the rate of 6¼ pice per rupee was levied, equal to Rs. 12-11-1¼.

XI.—On fish of all descriptions exported to Darajah, Shahbunder, and Sonmeeanee, of the value of one hundred rupees, an additional value of twenty-five rupees having been placed, duty at the rate of 7 pice per rupee was levied, equal to Rs. 13-10-9 per cent.

XII.—On fish conveyed to any town or village inland, the additional twenty-five rupees having been placed, duty at the rate of 7½ pice per rupee was levied, equal to Rs. 14-10-4½.

XIII.—On fishmaws conveyed inland to any village or town, duty at the rate of 6¼ pice per rupee's worth was levied. The contractor, instead of taking his duty in kind, usually received it in money from the fishermen, who disposed of their fish themselves. The rates at which payment for the different kinds of fish was made to the contractor was in some instances fixed by Government Regulation, thus :—

On the fish caught in nets, the value of the Government share was received from the fisherman at the rate of Rs. 22 per hundred.

Ditto ditto with hook and line, ditto ditto.

Ditto ditto at the rate of Rs. 16 per hundred.

On all other kinds of fish the value was recovered at the market rate.

* These cesses were levied at the following rates :—

I.—A tax of 27 per cent. on tanners' bark, cut by themselves.

Ditto of 50 per cent. levied on ditto purchased in town.

II.—One rupee and three annas on every boat-load of jungle wood for burning.

III.—A tax of 6 per cent. on jungle wood for building.

IV.—A tax of one basket-load from every boat containing charcoal.

V.—A tax on every Kurachee boat quitting the harbour, on a trip to Bombay or Muskat,—

Tindal	Rs. 1	8	0
Seerang	1	0	0
Cook	1	0	0
Each Kulasee	0	12	0

VI.—A tax on boats sailing to Sonmecanee, for each person on board, one rupee and three annas.

VII.—A tax on every doonda proceeding as far as Keemaree for cargo, two annas.

VIII.—A tax on export of fish by the land route, 20 per cent.

IX.—A tax on fish taken to the Camp for sale, 9 per cent.

X.—A tax on twigs used in the walls of houses, 5 per cent.

their labours being relinquished to them, the share of the contractor being first deducted. The great demand for fish during the presence of our force here in 1846, and the liberal prices given, together with the employment by Government of the fishermen, as boatmen, &c. enabled this useful class of people to extricate themselves from their difficulties.

The exports tend to show the fishing to be in an improving condition: a depreciation in the value of sharkfins and fishmaws, within the last two years, has had a discouraging effect; but notwithstanding, the fishermen are amongst the most thriving classes of the community.

Number of Boats employed		164
Kurachee.		
Class I.....	15	
„ II.....	20	
„ III.....	40	
„ IV.....	30	
		105
Coast.		
Class I.....	16	
„ II.....	3	
„ III.....	26	
„ IV.....	14	
		59

Export of Sharkfins, Fishmaws, and Salt Fish.

1844.....Rs.	12,068
1845.....	38,301
1846.....	42,626

SALT BEDS OF SIND.

The existence of extensive salt beds in the neighbourhood of the Ulla Bund was brought under the notice of Sir Charles Napier by Captain Baker, late Superintendent of Canals and Forests, in a letter dated the 18th July 1844, an extract from which is given below.* Soon afterwards,

* "I take this opportunity of bringing to the notice of H. E. the Governor of Sind, that there are pools and valleys, connected with the lower part of the Pooran, abounding in pure salt: many of the pools near the Ulla Bund contain superficial deposits of this substance; but Mr Hodges, Assistant Surveyor, who surveyed from Raoma to Wunga Bazar, met with large beds of salt of a considerable extent, and five or six feet deep. Should Government consider the subject worthy of attention as a source of revenue, it would appear from Mr. Hodges' description that the salt may be obtained in almost any quantity, and of the purest kind. I have brought away specimens of the salt, which on my return to Kurachee I shall have much pleasure in submitting for His Excellency's inspection."

specimens of the deposit were sent to Kurachee by the Collector of Hyderabad. These were forwarded to Bombay; but owing to the opposition of the salt merchants there, whose interests might be affected were Sind salt to get into the market, the subject was for a time dropped.

In November 1845 a partial examination was made, by the Customs Department, of the country from the Ulla Bund to the Seer mouth of the river, and an attempt was made to ascertain the commercial value of the deposit. It was found that no sea-going vessel can go higher up the Koree branch of the Indus than Kotasir, which is the port of Lukput,—communication is carried on between these places by boats of light draft. The expenses attendant on procuring a cargo were found more considerable than was anticipated. Camels, water, and forage had to be sent from Lukput to some distance inland from Kotree, where the article was shipped in boats, and sent to Kotasir, whence it was transshipped into a Malabar vessel. The Kutch authorities made a heavy claim for anchorage, which had to be met, and the proceeds realized at Mangalore were not sufficient to induce another speculation.

A letter was addressed by me in December 1845 to the Collector of Malabar, explanatory of all circumstances connected with the shipment, and requesting information as to the value of the article there, and whether it was likely to meet with a permanent demand. To this reference no answer was returned; the cargo was, however, admitted to entry, and I have never been able to obtain any satisfactory information as to the price paid for it, the party induced to speculate stating in general terms that "it did not pay."

In August 1847 a letter was received from the present Collector of Malabar, Mr. Blane, stating that a failure had taken place in the annual supply at Malabar, owing to gales of wind, and that the deficit, amounting to 15,000 tons, had to be provided for; and inquiring if the article could be supplied from Sind, as the merchants of Malabar had taken advantage of the circumstance to raise the rates. Tenders were called for, and but one was received, which was six rupees the Garee beyond the rate offered by the Malabar merchants.

Not having sufficient data as to the probable expense of shipping the salt, &c. the requisite information was not supplied by this department.

Salt of an equally good quality is known to exist in the Goongra, the next branch of the Indus westward of the Koree, where a vessel can be laden at a comparatively small expense. A specimen of the article was forwarded to Bombay for an opinion, which,* as given by Dr. Leith,

* *Opinion by Surgeon A. H. Leith, of the Bombay Medical Establishment.*

"It is just the same as the salt obtained by evaporating sea water,—the salt that is called *bay salt*: it is not so pure as *rock salt*, because it contains a little *sulphate of soda*,—very little, and of no consequence; and also some *muriate of magnesia*, which latter renders it a little

is decidedly favourable, and at once sets at rest the question as to the salt being fit for human consumption.

In the early part of the present year (1847), Lieutenant Burke, of the Engineers, travelled overland from Sind to Kuteh, and becoming aware for the first time of the existence of this extensive deposit, addressed a letter to the head of his department, Major Peat, the Superintending Engineer. He estimated the quantity at fifteen hundred millions of tons; and though from his own showing very imperfectly acquainted with the extent of the beds, yet I do not think his estimate overrated, but he has certainly very considerably underrated the expense of shipping the article at Kotasir.

The salt used in Kurachee is brought from the direction of Sonmeeanee, where it is found in deposit in beds of small size. It is found in the Mulleer river, and is met with along the entire coast, in greater or less quantity; in the interior of the country it is produced by parties who gain their living by its manufacture, which is as follows: patches of salt earth are found scattered over the entire face of the country; this salt soil is saturated with water, and the drainage is exposed in shallow vessels to the rays of the sun.

The price of common salt in the Kurachee bazar is ten annas for a camel-load of from five to six maunds; by retail, four pounds can be purchased for a pice.

bitter, but it can readily be removed by washing the salt in fresh water; but *as it is*, I have no doubt it would find a *ready market*, for it is very much cleaner than what is made in the Government salt-pans about Bombay."

REPORT

ON THE

PURGUNA OF CHANDOOKAH,

IN UPPER SIND.

BY

LIEUTENANT HUGH JAMES,

44TH REGIMENT BENGAL N. I.,

LATE DEPUTY COLLECTOR, SHIKARPOOR.

Submitted to Government on the 31*st December* 1847.

MAP
of the
CHANDOOKAH PURGUNA
in
Upper Sind.

CHANDOOKAH PURGUNA, IN UPPER SIND.

THE Chandookah Purguna, so called from the tribe of Chandias who formerly occupied the greater part of it, comprises a large portion of Upper Sind. It extends to the Desert of Kutchee on the north, and has the Hala Range of hills for its western, and the river Indus for its eastern boundary; to the south it joins the small but fertile District of Mehur, which separates it from that of Sehwan; and to the north-east it adjoins the Shikarpoor District, a portion of which (the division of Nowshera) was, under the ex-Ameers, attached to Chandookah.

The extreme length of the Chandookah Purguna is sixty miles, and its average breadth thirty-five. It is divided into nineteen minor divisions, or Tuppas, varying in size, to each of which a separate establishment was formerly appointed, but many under the British Government have been amalgamated. With great facilities for irrigation, Chandookah has not unjustly been styled the Garden of Upper Sind; but its value caused it frequently to change masters under the divided Government of the Talpoor family.

In the time of Meer Futteh Ali Khan, a valuable portion of this Purguna was made over to the Brahoee Chieftain, in compensation for the murder of one Zurruk Brahoee, who fell a victim to the bloody feuds which had marked the expulsion of the Kulhora princes. In the course of a few years, however, a quarrel arose between the Brahoees and Talpoors, and the gift was resumed; about a third of the district then fell to the portion of Meers Goolam Ali Khan, Kurrum Ali Khan, and Moorad Ali Khan, the brothers of Futteh Ali Khan. When Goolam Ali succeeded to the Turban, he made over his share to his son, Meer Mahomed Khan, his brothers retaining their original possessions.

A portion to the west was in this reign, in A. D. 1805, given to a Brahoee of wealth, whose daughter was married to the ruler of Sind, but was again resumed in A. D. 1816. When Kurrum Ali and Moorad Ali respectively became the head of the house, the former, being without an heir, retained his former share, but that of the latter was transferred to his son, Noor Mahomed. Meer Mahomed remained in possession of

the portion which, as above stated, he inherited from his father, Goolam Ali, whilst to Meer Sobdar, the son of the ancient Chief, Futteh Ali Khan, was apportioned in Jageer the division of Nalah Datah, which had been given as above in dowry by Goolam Ali, with some other villages. This is one instance out of many which shows the curious mode of inheritance amongst the earlier Talpoor Princes, where the brother took precedence of the son,—at that time productive of no inconvenience or confusion, but a practice which could not have been of long continuance ; in fact, the division of country amongst the younger branches would seem to indicate that the fraternal succession was a private arrangement amongst the four brothers already mentioned. After the battle with Shah Soojah, the Chandookah District was divided as follows :—

No.	Owner.	Divisions.
1	Meer Mahomed, son of Goolam Ali.	Lal Dariya ; Anderoon-Ghar ; Futtehpoor ; Nya Derah ; Ruttah Derah ; and Nalah Maksoodah.
2	Noor Mahomed, son of Moorad Ali.	Bukapoor ; Myl Lahory ; Anderoonee Beerah ; Beronee Beerah ; and Shahpoor.
3	Nusseer Khan, son of Moorad Ali.	Myl Morady ; Myl Wagun ; Warah ; and Khyrah Guchul.
4	Sobdar Khan, son of Futteh Ali.	Kumber ; Chiyrah ; Esaw ; and Nalah Datah.

On the death of Noor Mahomed, his son, Meer Shahdad, succeeded to the divisions of Myl Lahory, Anderoonee Beerah, and Shahpoor.

Such was the division of Chandookah prior to, and at the time of the conquest. A map is appended, showing the relative situations of the abovementioned divisions.

Chandookah, in common with the rest of Sind, has been the scene of many a bloody conflict,—its fields of corn trampled under by the invading horde, and its plains saturated with the blood of hundreds, shed in civil strife, or in contests with the Vicegerents of the Delhi Empire. In earlier ages, it is true, we may feel interested in the bold struggles of the country for its freedom ; but as each succeeding dynasty ascended and retained the throne solely by the sword, we can subsequently see in Sind but one continued battle-field, the scene of usurpation, tyranny, and bloodshed. The steel of Damascus has glittered on its plains; the miraculous club of the Kulhora placed the descendant of mendicants on its throne ; the matchlock of the Talpoor, in avenging a series of diabolical murders, gave it a new dynasty of shepherd princes ; till, finally, the British bayonet gave to the worn-out country peace.

As previously stated, the District of Chandookah proved a source of wealth to the Ameers ; but prior to considering in detail the sources

whence it was derived, I will treat of the general nature of the country, and its means of irrigation. For the first purpose, the district may be divided into three portions,—1*st*, that to the north of the Ghar; 2*nd*, the country between the Ghar and the Narah; and 3*rd*, that lying between the latter and the Indus.

The first portion is flat, and, where the means of irrigation do not present themselves, is covered with a low jungle of tamarisk, kandah, and kureel. In the vicinity of canals, however, the cultivation is extensive, their course being mostly denoted by the larger forest trees, which will be presently spoken of. As the Desert is approached, the signs of cultivation disappear, the jungle becomes thinner, and vast plains are traversed where the soil is thickly impregnated with salt. The picturesque village of Khyrah Gurhee, with its two forts, grove of trees, and small patches of cultivation, relieves the eye of the traveller, but on looking further north, there is nothing to intercept the view over the salt and dreary desert. The boundary of Chandookah, and of British Sind, is about three miles north of this post. The country for several miles south of Khyrah Gurhee presents a desolate appearance; the ruins of villages are frequently met with, and the choked-up beds of deserted watercourses,—all evidences of former prosperity, as of the later inroads of the mountain robbers, who have despoiled this part of the country, and driven its inhabitants to a less exposed locality. To the west, on either bank of the Datah Canal, the marks of former cultivation are very striking. Shahdadpoor, on its west bank, was a large town, from which Lord Keane drew supplies for his army when advancing on Afghanistan, but is now a ruin, and, when I visited it in September 1846, an old Hindoo was its sole occupant. Poonoo, to the north-east, is another large ruin: seven pukka wells, two extensive canals, and a vast surrounding plain, with jungle of only a few years' growth, attest its former prosperity. Further south, the country is interspersed with villages, adorned with clumps of trees; cultivation is extensive, and the canals numerous. The uncultivated portions are covered with the above-mentioned brushwood.

The second division, viz. that between the Ghar and the Narah, is also flat, but lower than that to the north, and contains the most fertile tracts in Chandookah. For several miles from the banks of these canals, populous villages and extensive fields bespeak a lot more favoured than that of the first division. Myl Morady, Myl Lahory, and Myl Wagun, are in this part of the district. The word "Myl" signifies in Sindee a swamp, and has been applied to those divisions from the circumstance of their being considerably lower than the adjacent lands, and receiving the waters of the Ghar, which here find an outlet. The rice cultivation is very extensive. The villages are principally raised on mounds, and

in some cases are further fortified from inundation by a ditch carried all round them. The country continues low and swampy to the south-west. The remainder of this portion is either overrun with the low shrubs before mentioned, or presents a desert-like appearance, where the salt manufacturer carries on his work. All the canals and most of the villages are prettily wooded.

The third division, viz. the country between the Narah and Indus, differs considerably from the other two. For some distance from the first-named river there is a great deal of cultivation, but the space between that and the Indus is in some places sandy waste, with patches of a tall flowering grass, and in others thick jungle of tamarisk and kandah. The surface, too, is more broken and irregular, intersected with many a natural watercourse. The lower lands, when the waters of the inundation recede, yield beautiful crops of peas, gram, and barley, requiring but little care on the part of the husbandman. A belt of forest clothes the banks of the Indus, averaging two miles in depth, where the silvery balum, the seesum, and the babool grow luxuriantly, the intermediate space being covered with a tangled brushwood. The scenery of this part of the district is more varied than the rest, and more interesting to the stranger, who, leaving the noble river and the cool shades of the neighbouring forest, in the open spaces of which herds of buffaloes and cows find rich pasturage, comes now upon the fresh, green crops of spring, and now upon the grassy meadow; passing here a group of temporary huts, occupied by a wandering party, who have brought their cattle here for pasture, and there the more pretending village; again entering the forest, he crosses a newly cleared plot of ground, where the blackened and rugged stumps of babool stand ominously forth, a proof of man's inroads, and affording a strong contrast to the surrounding verdure; then he meets a busy throng, the temporary occupants of a few matted huts, engaged in the manufacture of reed baskets and mats, the materials for which are so plentiful; till further on the broad sheets of cultivation, and the distant line of peepul and babool trees, betoken his approach to the Narah. The soil of the district is a rich alluvial, for the most part composed of a mixture of carbonate of lime and clay, and in some parts of loose sand, with considerable saline impregnation. This, however, will be more particularly spoken of hereafter. With regard to the means of irrigation possessed by this district, the Ghar and Narah rivers are the principal. The former receives its waters from the Indus by three mouths, situated near each other about twenty-five miles north-east of Larkhana. After the first few miles, its course is very winding: its length (in a straight line) is about sixty miles, and its average breadth from sixty to eighty feet. From Esaw, a village twelve miles

west of Larkhana, it takes the name of the Noor Canal, and thence to its tail at Dost Ali it averages in breadth from fifteen to twenty feet. This part is artificial, and is called after Noor Mahomed Kulhora, in whose reign it was dug. It has been asserted that the whole of the Ghar is an artificial canal, and that its many turns were caused by its having been carried through lands suited for cultivation; but the immense cost and labour required for such a work (the depth of the canal from the surface being some twenty feet) renders this scarcely credible, and I have observed that in many places the bends of the river take it *from* the lands which would have been benefitted by it. A stronger proof of its being a natural river is the level nature of the country on its banks : there is not in its whole length the slightest trace of a mound, which must have existed had the mass of earth from its bed been thrown up. The water generally enters the Ghar in April, and it becomes dry in November. The average depth of water from the middle of May to September is ten feet, and it runs at the rate of from three to three and a half miles an hour. A few years ago it is said the Ghar continued full all the year round, and it used frequently to overflow its banks ; a ditch was dug round the old fort of Larkhana, about a hundred and fifty yards from the river, to protect it from such inundations. Great quantities of the water are taken by branch canals all over the district, and the remainder finds an outlet over the low lands which have been spoken of above. Nearly the whole of Chandookah derives its means of irrigation from this river.

The Narah, signifying "a snake" in Sindee, is appropriately so called, from its tortuous windings, in which respect it is more striking than the Ghar. Its mouth is about two miles south of those of that river, with which for some miles it runs nearly parallel; but afterwards, taking a south-west direction, it flows through the Mehur and Sehwan Districts into the Munchur Lake. Its average breadth is one hundred feet, and it is navigable for the largest boats. Its banks are in most parts thickly wooded with babool, neem, and peepul trees, by which its course may be traced at a great distance. Only two divisions, those of Anderoon Ghar and Lal Dariya, with a few villages of Bukapoor, receive its waters for irrigation.

From the Ghar the Mittah Canal branches off near Muddojee, twenty-four miles north-east of Larkhana, and flows in a north-westerly direction to a distance of about twenty miles : near Ruttah Derah it forms a junction with three other canals. The Gharee (a continuation of the Sind) meets it from the east, the tail of which, called the Kadah, continues to the west, watering the districts of Futtehpoor and Anderoonee Beerah. The Maksoodah Canal, running to the north-west, conveys water to the Ruttah Derah, Khyrah Guchul, and Maksoodah

Districts. The last canal flows to Khyrah-ke-Gurhee, from which post there is thus water communication to the Ghar, and by the Gharee and Sind to Shikarpoor. The Mittah Canal itself waters the Nya Derah and Ruttah Derah divisions.

The Meerwah flows from the Ghar near Rahoojah : it has fallen greatly into disrepair, and is now of but little value; a few villages in Nya Derah and Futtehpoor receive its waters. It flows for about ten miles in a northerly direction.

The Heerah Canal is a very fine one : it branches from the Ghar about midway between Larkhana and Nya Derah, and flows upwards of twenty miles in a north-westerly direction. It was last year cleaned throughout, under the superintendence of Serjeant Regler, a most active Assistant in the Survey Department. It is of value to the Futtehpoor, Beronee Beerah, and Khyrah Guchul divisions, and the cultivation from it is extensive.

The Khyrah and Beerah Canals, branching from the Sind, north-east of Ruttah Derah, water the districts of their own name.

To the west of Larkhana, near Kumber, the Nourung Canal flows to Nusseerabad, a distance of about fifteen miles, in a south-west direction. It is likewise a very fine canal, and waters a great part of Myl Lahory, Bukapoor, and Myl Morady. Many large and thriving villages are situated on its banks, which are beautifully wooded, and in following its course, sheets of cultivation (principally rice) extend on either side as far as the eye can reach. It has not been cleaned for many years, but its bed is still unobstructed. From Nusseerabad it continues through the low lands of Myl Morady and Myl Wagun, under the name of the Cheela Canal.

The Shah Canal branches from the Ghar about six miles west of Larkhana, and flows at first in a northerly direction, afterwards turning more to the west. It is a large canal, dug by Noor Mahomed Kulhora, whence its name, as also that of the village of Shahpoor, and the district so called, through which it flows. The traces of extensive cultivation are visible throughout its course, and the records of the Ameers' office prove its former value to the Government. It is now in want of repair, and, save at its mouth, there is but little cultivation. In A. D. 1842, just before the conquest, Meer Shahdad, in whose country, as above shown, it was situated, sent an order for Rs. 10,000 to be expended on its clearance, but this was never carried out. The villages, in consequence, upon its banks, are mostly in ruins, and one of the largest, that of Shahoo Jumalee, is chiefly dependent for its means of irrigation on the water brought by cuts from some low land to the west, supplied by the rain-water from the hills.

Two miles to the west of the mouth of the Shah is that of the Datah

Canal, which takes its name from one Datah Kohawur, who excavated it in the reign of Noor Mahomed Kulhora, and of whom honorable mention will presently be made. It is the finest artificial canal in Upper Sind, and flows in a north-westerly direction to the frontier of Kutchee. Thick belts of babool trees clothe its banks for many miles, and even now the cultivation there is extensive. Beyond, however, it is but the record of past prosperity, and north of the ruins of Shahdadpoor not a beega is under tillage. In A. D. 1840, the District of Nalah Datah was sold in contract for one season to Futteh Chund for Rs. 1,00,000, and he expended Rs. 7,000 on cleaning the canal. From want of water, the inhabitants of the villages on the two lastmentioned canals have emigrated, but would immediately return if the canals were even partly repaired. I received numerous complaints on the subject, but as the Canal Department is so entirely separate from the Collectorate, I could do nothing but hold out hopes to the petitioners, who could scarcely be expected to understand why works being carried on on other canals should prevent the repair of their own,—they, too, who were forced to furnish statute labourers for the clearings, from which they derived no benefit.

The above are the principal branch canals, and they afford means of transport to all parts of the district, from the months of May to September inclusive, a mode far cheaper than land carriage, and generally adopted. In Appendix A will be found a table of these canals, showing their length, breadth, and depth. From these, again, nearly nine hundred minor canals branch off, dug and kept in repair by the farmers.

The other means of irrigation, viz. wells and the waters of the Indus, will be considered under the head of agriculture; but in Appendix B will be found a table showing the number of wells and minor canals, with their depth. The rules in force regarding the clearing of canals will also be mentioned under different heads.

The subject of this Report may now be divided as follows:—

I.—The Natural Productions of Chandookah; its Towns, Villages, and Buildings.

II.—Its Population, and the Habits and Character of its Inhabitants.

III.—The Nature of Land Tenures in Sind; and the Relation of the Agricultural Classes to each other, and to Government.

IV.—Its Revenue under the ex-Ameers, and under the British Government.

V.—Its Agriculture and Manufactures.

VI.—Its Criminal and Civil Jurisprudence.

I.—NATURAL PRODUCTIONS, &c.

Forest Trees.

The Neem *(Melia Azadirachta)* is valuable for its medicinal properties, and forms an ingredient in almost every medicine. It is usually applied as a poultice, but is sometimes taken internally. Its seed is highly aromatic, and the fair sex apply it as a plaster on the temples, both for its fragrance, and also for a purpose which I am loth to record, viz. to drive the vermin from their thick and glossy ringlets. Better this, however, than the more common manual operation. Taken in quantities, it is considered poisonous, and Boy de St. Vincent mentions a spring of water in Spain, on the margin of which was a grove of these trees, and whose waters were unwholesome; but when the French army came and removed them, the salubrity of the water was restored. Its fruit is used, as in Java, as a tonic, and yields an oil said to be antispasmodic. The Neem attains a great height in Sind, and from the shelter afforded by its luxuriant foliage, is a most valuable neighbour to a Sindee village.

The Sissoo *(Dalbergia sissoo)* is likewise of much value, but principally for its timber. Of the same natural order and genus as the Beya or Jamaica ebony, its wood, when polished, is of equal beauty. It is also particularly strong and durable, and is generally used in the construction of boats, and as beams for large dwelling-houses. It is peculiarly fitted for the latter purpose, as resisting, more than other kinds of timber, the attacks of that enemy to architecture in the East, the white-ant. These various properties may be considered as making up for the somewhat stunted appearance of the tree.

The Babool *(Mimosa Arabica)* is the tree most frequently met with in this part of the country, and must rank in utility not far below the two already noticed. It affords a gum which is in great request, and its bark is used by the tanners. Usually planted along the banks of canals, its roots bind the soil, and thus materially add to the permanency of such works. Although its timber is frequently used, yet it is chiefly valued for its gum and bark. In favourable situations it attains a great size, and is highly ornamental. A species, called the Kaboolre, does not afford much gum, nor does its bark contain properties useful in tanning: its growth is also different, the branches striking perpendicularly and close, instead of spreading. It is not so commonly met with.

The Siris *(Mimosa siris)*, to which many virtues of a superstitious nature are attributed by the Natives, owing to the medicinal properties which most trees of this tribe possess. Its leaves, mixed with earth, are thrown upon a person supposed be under the influence of an evil

spirit, and a necklace of the same is worn by those afflicted with ague. The tree is ornamental, and its blossom very fragrant.

The Lassooree (*Cordia myra*) is a fine tree. Its leaf is large, and from its inner bark is obtained a fibre, from which the coiled match of the Native fire-arms is made, and its wood is used for sword sheathes. The fruit, which contains a great deal of mucilage, is eaten by the Natives, and from it is extracted a strengthening medicine. It is also used in the preparation of spirituous liquors.

The Ber (*Zizyphus jujuba ?*) is commonly met with; its berry is much liked by the Natives.

The Tamarisk (*Tamarix Indica*) is usually found as a shrub, but sometimes of larger growth. It constitutes the greater part of the jungles, and is very serviceable to the inhabitants. Its wood is used in the construction of water-wheels, and a berry, found on its branches, affords a dye in common use. A great quantity of saccharine matter is also obtained from it. It is of greatest utility, however, as firewood, and being so plentiful, and within the reach of all, enables the poor cultivator to retain the dung of his cattle for manure, instead of using it as fuel, as in most parts of Hindoostan.

The Karel (*Cleome pentaphylla*), or Wild Caper, is found in most jungles with the above. Its berry is in the green state preserved as a pickle, and when ripe eaten as a fruit.

The Kandah, a stunted Babool, is very common, and useful as firewood, and for the construction of enclosures.

The Baw (*Styrax benzoin*) is common in the vicinity of the river. It is used in the construction of water-wheels, but, being usually found in Shikargahs, was a forbidden tree to the Sindees under the late Government.

The Amaltas (*Cassia fistula*) is found, but not common. Its powerful medicinal properties are well known to the Natives, and it is as frequently used as the *Cassia senna* in the Western World.

The Peepul (*Ficus religiosa*) is frequently met with, but can only boast of its beauty as an attraction. Here, as in India, beneath its noble branches sits the unclad, dirty Fakeer, living on the bread of idleness, and usually the associate of all the villains in the neighbourhood.

Fruit Trees.

The Mango thrives well, and the produce is of a superior kind.

The Plantain is common, but of an inferior description.

The Apple and the Nectarine are met with, but are small, and ill-flavoured.

The Vine is grown, generally trained, but also as a standard.

The Date is very common, and is a fruit largely consumed, and

exported both fresh and dried. The wood, leaves, and fibre are all of utility to the inhabitants.

The Lime and Pomegranate are common, but inferior.

Grain.

The principal Grains are the Jowaree *(Holcus sorghum)*, Bajree *(Panicum spicatum)*, Arzum *(Panicum pilosum)*, Barley, Rice, Wheat, Sesamum, and various kinds of Vetches, Pulse, and Millet; Oats have been found to thrive admirably.

Cotton.

Cotton of a very superior kind is grown in this district, and in large quantities; also Sugar, Indigo, and Tobacco; but these not to any great extent. I purpose reporting more in detail upon these articles under a future head.

Vegetables.

Turnips, Carrots, Radishes, Baingun, and the common vegetables of India, are grown in the district.

Animals and Birds.

The one-humped Camel is a valuable beast of burthen, but they are not generally of a large description; the Tattoo and Ass are much smaller than those in India. Sheep, especially the large-tailed one, called the Doombah, are very common in the hills to the west, and the Buffalo, Ox, and Goat, are all of a large size.

Tigers are met with, in the forests on the banks of the Indus, occasionally. I saw two in the early part of 1846; but the visits of these animals are not frequent. They come down from the forests above Sukkur. The Wild Hog, and the Hog Deer, are common in the forests, and the Antelope further from the river; the Ibex is found in the hills to the west; the Wolf, the Fox, the Jackal, and the Hare, are commonly met with.

The Black and Grey Partridge, Quail, Snipe, and Wild Duck, are found in great quantities; and the Oobara, a description of *Otis tardis* between the Florikin and Bustard.

Minerals.

Alum and Sulphur are found in the hills to the west, and a coarse kind of Salt is everywhere obtained in large quantities.

Towns and Villages.

The principal town of Chandookah is Larkhana, so called from the tribe of Laruk, which once settled there. It is about twelve miles from the Indus, and on the south bank of the Ghar. It was said to contain about 12,000 inhabitants; but I do not think its present population can be estimated at more than 8,000. It possesses a good covered

bazar, from which narrow and dirty lanes branch off. There are several gardens and many date groves in its vicinity. The houses are of mud, with flat roofs, and generally two stories high. A few are built of burnt brick, and are higher than the rest. The streets and neighbourhood of the town are very filthy.

Kumber was a large town, about twelve miles west of Larkhana, but it was plundered by the Beloochees in the latter part of 1844, and a great portion of it destroyed by fire in the following year. It now presents a very ruinous appearance, but has still a good bazar.

Khyrpoor, also about twelve miles from Larkhana, is a large town, with a fort. It is in the Jageer of Meer Beejar Khan.

Nusseerabad, built by Meer Nusseer Khan, twenty-four miles south-west of Larkhana, is also much deserted. The streets are broader, and the houses larger, than in other towns; and it has also a good fort.

Ruttah Derah, about twenty miles north of Larkhana, is the only other town of importance. It has a good bazar and fort.

The villages in Chandookah are of good size, and nearly all possess a bazar. The houses are of mud, with flat roofs, and those of the poorer classes are of tamarisk wood, covered with mats and boughs, or, where procurable, grass. Many villages are composed almost entirely of dwellings of the latter description, little if any distinction being observable between the sheds of the cattle and of their owners. In low lands the villages are raised, and sometimes have also a ditch all round them, as a guard against the waters of the inundation. Those which were the residences of Chiefs, or large Zumindars and Government officials, have mud forts, with a tower at each corner, and in almost all villages is to be seen the watch-tower, which served as a place of defence for the inhabitants when suddenly attacked by predatory bands. Similar towers are also frequently met with in the middle of the fields, for the protection of the crops against the inroads of the mountain robbers. All the towns and villages are dirty, in the extreme, and mostly void of all appearance of comfort. The mosque, the bazar, and the head man's house or fort constitute the village, and around them are the Landees or sheds of the Sindees, usually in enclosures of thorns, containing the dwellings and cattle-sheds, and a platform raised on poles, on which the people sleep in the hot weather. Adjoining these are the pens for goats and sheep, formed likewise of thorns. Save in size, and the adjacent scenery, there is but little perceptible difference between the villages of Chandookah. They are called after the head man, whose tribe only is mentioned, for the sake of brevity, and also because it is unchangeable, but in all written documents the name of the village is given at length. The number of villages in the district, of all sizes, is 392.

BUILDINGS.

The buildings in Chandookah, like those of most parts of the country, consist of the tombs of men of celebrity. Of them, that of Shahul Mahomed Kulhora is the most worthy of notice, and is looked upon with great veneration by the people of the country. Shahul Mahomed was the grandson of Adam Shah, the celebrated mendicant, who, collecting adherents in Sind, finally obtained such power as to pave the way for his descendants to the throne of the country. Even in the time of Shahul Mahomed, the Kulhoras had obtained power and influence, and a considerable extent of land, although it was not for several generations that they became the absolute Monarchs of Sind. Their power at that time may be known from their frequent skirmishes with the armies of the Vicegerent of the Delhi Emperor. It was in one of these conflicts, at the village of Futtehpoor, about six miles from Larkhana, that Shahul Mahomed was killed, receiving thereby the honours of martyrdom. It is related of him, that after death his head flew to the spot where his tomb now stands, whither his followers afterwards brought his body. The tomb is situated on an eminence, and is plainly built, but the interior is decorated with the enamelled tiles of Sind. In an outer court are deposited the remains of his immediate followers and descendants, and some of those who fell with him at Futtehpoor. The doorway both of this court and of the mausoleum is hung with the votive offerings of those who consider that their prayers for any particular blessing have been heard through the mediation of the saint. These consist principally of iron bells, and strings of shells. The pilgrim to the shrine rings them on entering the portal, and, muttering his prayers, reverently approaches the more sacred building. The tomb itself is covered with rich silk and brocade, the offerings of the wealthier visitors. The sides of the hill are covered with brushwood, amongst which are the humbler graves of the less celebrated of his descendants. On descending from the edifice, a party of miserable mendicants, whose duty it is to keep the courts in a state of cleanliness, clamorously demand a fee, a portion of which is retained by them, and the remainder distributed to the few surviving descendants of the family. It may be mentioned here, as a proof that the rapid fall of the house of Kulhora was no less striking than their curious rise to sovereignty, that one of the parties now receiving a portion of the above-mentioned preceeds, as a lineal descendant of the renowned Adam Shah, was a goatherd in my service. This tomb was built about a hundred and fifty years ago; it is in the Bukapoor Tuppa.

Another celebrated tomb is that of Shah Baharah, a celebrated Minister of Noor Mahomed Kulhora. He had the sole management of

the affairs of this part of the country, and commanded a division of 10,000 men. Several canals and forts were excavated and built by him. This tomb is at Larkhana, in a garden on the north bank of the Ghar. It is highly ornamented, and the inscriptions about it are numerous, and well executed. These mausoleums are generally of an octagon shape, but sometimes square, and surmounted by a dome. They are internally decorated with flowers and fruits in enamel, and verses from the Koran and poets. From one of these, in the building under consideration, we learn that Shah Baharah flourished in the year of the Hejira 1188, or A. D. 1774.

The other buildings of this description are numerous, but smaller, and less pretending than the two above mentioned.

There are a few pukka bridges in the districts, but of no great span: the largest is one near Ruttah Derah, built by Shah Baharah.

The old fort of Larkhana is a large square building, with four towers; a fifth tower, at the gateway, is of burnt brick, and higher than the others; the rest of the building is of mud. This was one of the arsenals of the Talpoors, and now contains the fine hospital and the store rooms of the Camel Corps, and the Civil Jail. It was the residence of the celebrated Minister Futteh Mahomed Lugaree, who will be spoken of hereafter.

We will now turn to the second division of this Report, and consider

II.—THE POPULATION, AND THE HABITS AND CHARACTER OF THE INHABITANTS.

In the absence of any accurate census, we can estimate the population only by a comparison with other countries, whose statistics are better known. The French have always taken the lead in this science, and in 1828 one of the most accurate tables of the kind was drawn out by M. Adrien Balbi, entitled "Balance Politique du Globe." In this he gives the population of Sind at 25 per square mile, but makes the population of Herat 30, and that of Beloochistan 18 per square mile. Now, estimating the area of the latter at 110,000 square miles, we should have a population of 2,000,000, which is impossible. The numbers given in several other instances in his chart appear to be over-estimated, and I think we might calculate the population of Sind at 20 per square mile.

But I would try other data: we find the number of ploughs (Appendix R) in Chandookah to be 7,733; and on the average one plough will cultivate 18 beegas of land,* and 12 beegas of actual cultivation will

* Autumn crop ..... 5 beegas.
Middle crop ..... 5 „
Spring crop ..... 8 „

will support a family of three. This will give us 34,797, and if we add one-fifth for artificers and traders, the total will be 41,756 : now at the rate of 20 per square mile we should derive the following :—

Length of Chandookah.....	60	miles.
Average breadth	35	„
	2,100	square miles.
	20	
	42,000	souls.

the calculations nearly agreeing. Until a more correct census is taken, I would estimate the population of Chandookah at 40,000 souls in round numbers. When I state that one plough will cultivate eighteen beegas of land, I take the average of all lands, for of course in some localities one plough will not cultivate more than four or five beegas.

The population may be divided into two great classes, the Hindoos and Musulmans. The former are sub-divided into the official and trading classes. The Hindoos, from their talents as accountants, were always employed in the offices of the Ameers, and for the collection of revenue; but they as well as their trading brethren were only tolerated for their utility to the Government. The appraisement and measurement of the lands gave employment to a vast number of these men, who by their exactions and dishonesty were a perfect plague to the poor cultivators. The trading portion amassed great wealth, but every contrivance was resorted to, to conceal it from the covetous grasp of their princes. From living in a tolerated state in a Mahomedan country, the Hindoos have of course lost the purest part of their religion, and are lax in the performance of their rites. They wear beards, and the Beloochee head dress; eat flesh and fish ; drink wine; and seldom perform the ablutions laid down for their observance. No Hindoo temples are to be seen; and, in fact, they pay as much veneration to the sanctified resorts of the Moslem as those of the hostile creed themselves. Many were forcibly obliged to change their religion; the most trivial circumstances being taken as pretexts for such acts of violence. Thus, any one who mentioned the word Rassee (rope) in conversation was supposed to have invoked the Prophet, and was immediately compelled to perform the first rite of Mahomedanism. The Head Moonshee in the office of the Ameer of Khyrpoor would never in the accounts write the name of the village of Russoolabad, calling it always Wuzeerabad. Dirt, fear, meanness, and an inordinate love of wealth, form the leading characteristics of the trading Hindoos, who are, however, industrious in their avocations. No village is without its Bunya, and their persons were generally respected by the

predatory bands of the Beloochees, in whose encampments they also settled. We shall see soon how great a share they indirectly took in the agricultural affairs of the country, and how inextricably they weaved their toils around the poor cultivator. The Hindoos in Government employ were not so wealthy, but far more consequential than the traders, and even more lax in religion and morals: a party of them visiting a village as measurers or appraisers caused far more domestic misery than would have been felt after a Belooch foray.

The Musulman portion of the community may be divided into Beloochees and Sindees: the former were the military retainers of the Talpoors, holding their lands from the sovereign, and attending upon his requisitions for troops when required; the Sindees are mostly all cultivators and artisans, and were not called on for military service under the Talpoors. They had, however, formed part of the army of the Kulhoras, and were never averse to summon their followers, and settle a boundary or other dispute by the sword. The principal tribes in Chandookah are,—

1*st*.—The Chandias, from whom the district is called. They at present occupy a portion to the west under the hills. Their Chief is Wulee Mahomed, who lives at Ghybee Derah. The tribe is now poor and scattered; their country is destitute of the means of irrigation; and the soil, too, is unproductive. 10,000 of this tribe, under Wulee Mahomed, proceeded to join the Ameers against the British, but arrived too late to render them any assistance. They are not, I believe, of Belooch origin. Much of the theft committed in the district is traced to men of this tribe.

2*nd*.—The Jumalees, a Belooch tribe, settled on the borders of the Desert. Their principal residence in Chandookah is at Khyrah Gurhee. They are very poor, and do not cultivate much; robbery, and feeding flocks, were formerly their more favourite occupations.

3*rd*.—The Abras, a large tribe of cultivators, settled principally to the south-west of Larkhana. They were originally a portion of the Kulhora army.

4*th*.—The Jutts, a large Sindee tribe of cultivators, and rearers of cattle; generally of wandering habits, and found scattered over the country. There are many sub-divisions of this tribe, the principal of which in Chandookah are the Darodgurhs, Joonejahs, Kohawurs, Wugguns, and others. That portion which took entirely to cultivation have settled down, and lost the name of Jutt, which is now applied only to those of the tribe who rear cattle.

There are numerous other families, but of small extent, such as the Lahorees, Hukrahs, Chujrahs, &c.

The Sindees are, generally speaking, a quiet and industrious race. They are tall and handsome, and can undergo much fatigue, but are not

very noted for activity. They are nearly all cultivators, and occupied entirely in tending their crops and cattle. The household duties are performed by the women, who are very industrious. Before the break of day they have to rise, and grind the corn for the day's consumption, their millstones being the first sound that breaks upon the stillness of night. The men go forth to their work about sunrise, and labour till noon, when the women take them their food into the fields, and return to prepare the evening meal. They take a share, also, in field labour, such as picking cotton, gleaning, &c. They are seldom convicted of theft, and it is to be deplored that a barbarous custom which legalized murder subjected them, under the Ameers, to an unmerited and cruel death, the slightest suspicion of infidelity being sufficient to warrant their murder. Sad were the scenes enacted under this revolting practice; and however gradual the change may be, it is still to be hoped that the British Government will eventually succeed in removing such an impediment to the progress of social improvement. The poorer classes have no particular amusement, but from the time of returning from their fields to that of retiring to rest they sit conversing together. They cannot be praised for love of truth; for whether in the preparation of forged documents or in giving evidence, their lying propensities can scarcely be surpassed. Except the large landholders, all are ignorant and illiterate. There is a school at Larkhana, where boys are taught to read and write, but there are not many attendants, and as they are useful assistants in the field at a very early age, they are soon withdrawn from their studies. They are a very superstitious race, and place great reliance on the ability to serve them of departed spirits. They consequently pay great veneration to the tombs of men of sanctity, which are always loaded with the votive offerings of those who crave their aid. Near Shahdadpoor there is a pair of large millstones in a garden, about four feet in diameter. It is on the banks of the Datah Canal, so called from Datah Kohawur, a man as renowned for his wealth, and the canals dug by him, as for his unbounded liberality,—he was the Hatim Taee of Chandookah. It is related of him that no poor man passed his door unfed, and the above millstones are now considered sacred, for we are told that God was so pleased with his piety and liberality, that even if a handful of grain was thrown in, the supply of flour was equal to all demands. They are approached with bare feet, and the precincts kept in cleanliness and good order. There is a tomb over the remains of a celebrated Peer, on poles, around which are seen the heel-ropes of horses; for whenever an animal in the neighbourhood is afflicted with disease, the owner prays at the tomb, and, on the recovery of the animal, offers the heel-ropes in gratitude for the saint's assistance. If a person breaks a branch of the tree which overshadows

the tomb, he is supposed to be doomed to meet with some mishap. There is a class of men in Chandookah, as elsewhere, who enjoyed great privileges, and collected much wealth under the ex-Ameers: these were the Peers, and other holy men who came down to Sind from the north, many of them holding grants of land, originally made by Nadir Shah, and confirmed down to the present day. They paid no ferry or town duties, and, both by the rulers and people of the country, were treated with the greatest respect. The weavers, who form the greatest part of the non-cultivating portion of the community, are an industrious people, and their women either assist them, or employ their time in the manufacture of mats and baskets.

We now come to the third division of this Report.

III.—THE SYSTEM OF LAND TENURES, AND THE RELATION OF THE AGRICULTURAL CLASSES TO EACH OTHER AND TO GOVERNMENT.

The same order which from the earliest periods of Indian history has been at all events nominally recognised both by Hindoos and Mahomedans, viz. the institutes of Manu, whereby the land is declared to be the property of him who brings it under cultivation, has obtained also in Sind; but the same innovations have been made in this equitable law as took place in Hindoostan under the rule of the great Akbar, and more so under that of his successors. It is impossible to go very far back into the past regarding anything connected with Sind, whose records, scanty in themselves, have been still further diminished by the unrelenting hand of fanaticism; but we can still trace some faint resemblance in later times to the old village system, whose working has been so praised by the ablest men in India,—a system, too, which the Mahomedan conquerors of the country have found it to their interest to maintain, though not in its original purity. This primitive order of things must, however, soon be laid aside, when the retainers of the ruling power are, as it were, quartered upon the country, receiving land in lieu of cash wages: the soil must then virtually change proprietors, and the whole system become one of mixed anomaly, adapted to the immediate wants of the Government. The ownership of the entire lands in each village is vested in the Zumindars, and their heirs in perpetuity. A portion is cultivated by themselves; some by men who appear to possess an hereditary right to cultivate, as their lands cannot be taken from them at will, but they pay Lapa or rent to the Zumindar, generally in kind, at so many kasas per beega. Besides this, there is a fee leviable on the produce of the lands, called Wajah Zumindaree, which is claimed by the head man. When a portion of the

land is sold, the purchaser becomes entitled to the Lapa, but the Wajah is still given to the head man. In every village is the Kotwal, whose duty it is to point out the cultivation to the Government measurers and others, and to define the boundaries of estates, as also to assist in all matters of revenue collections, for which they receive a fee from that portion of the produce laid aside prior to the whole being divided between Government and the cultivators. The poorer class, who hold small patches of land in their own right, are principally indebted to the Hindoos for the means of cultivating them: their accounts run on from season to season, and the traders take good care to keep them well involved, leaving them but a bare sufficiency for their subsistence till the next harvest. The Zumindars make their own terms with those to whom they rent their lands, usually receiving, besides fees, a portion of the produce, and paying the Government demands themselves. The late Regulation, therefore, by which a low land-rent in cash has been fixed is, in good seasons, advantageous only to the Zumindar, who continues to take the same portion as before from his tenants. It is true the Zumindar advances the seed, and bullocks, and keeps the watercourses in repair, but still his share of the proceeds is an unfair one, and in bad seasons they frequently leave their tenants to pay the Government demands, and to return their own advances, making what they can of the balance. Under the ex-Ameers, the Zumindar paid the rent to Government, and collected his own dues from his tenants, so that the above unfair evasion could not be made. It will thus be seen that the Zumindar only transacted business with Government or the contractor, and that he made his own collections from the tenants. The villagers all pay him great respect, and his advice is acted on in all the agricultural affairs of the community. His labourers usually remain with him, together with their families, as they are at all times averse to change, and are driven off only by unbearable extortion;—they are satisfied with a bare subsistence, and small advances of money. Where the greater portion of wages is paid in kind, the cultivators and labourers are necessarily poor, and at present it would be almost impossible to collect the Government dues from the tenants themselves. With regard to lands in Jageer, the grantee stood in the light of Government, and made his own remissions, and received his dues from the Zumindars, who continued in the possession of all their rights. There is a strong bond of union between all the members, from the Zumindar down. The village carpenter receives his fee for the annual repair of the Persian wheels, and the potter for his supply of the earthen vessels attached to them; but every individual is more or less dependent on the Zumindars, whose interests they find so intimately connected with their own. The boundaries of estates are not very

clearly defined, which caused many feuds between neighbouring villages: if a man wished to reclaim waste land, he applied to Government for a Putta granting it to him in Zumindaree, or otherwise, according to circumstances, and fixing the rent at a very low rate for the first few seasons; but the Government subordinates usually contrived to find some flaw in the document, or some alleged agreement uncomplied with, as a pretext for assessing the land at the full rate shortly after its clearance. For the granting of these Puttas, the land was divided into Ahitah, or clear of jungle; Nahwur, or with slight jungle; and Junglee, or thick jungle; and the amount of remission estimated accordingly, but by no fixed rule: sometimes a man would incur great expense in digging a canal, &c., but a year afterwards he would find his labour unrewarded, some office Moonshee having pretended to discover that the land was probably Nahwur, and not thick jungle, as specified in the Putta. It was seldom that the Ameers themselves interfered in the collection of the revenue, or increase of cultivation. But this brings us to the fourth head, viz.

IV.—THE REVENUES OF CHANDOOKAH UNDER THE EX-AMEERS, AND UNDER THE BRITISH GOVERNMENT.

1*st*, *Land Revenue*.—This in Chandookah was collected according to four modes of assessment, viz. Buttaee; Kasagee; Cash-rent; and Eree Rukub.

The Buttaee, or rent in kind, was a certain portion of the produce, varying from a quarter to half, but generally speaking two-fifths.

Kasagee was also a portion of the produce, but estimated with reference to the extent of land cultivated. The average rate was 7 kasas per beega; and as 30 kasas is the average produce of a beega, it was equal to about one-fourth.

The Cash-rents varied, according to the nature of the crop, from Rs. 3 to Rs. 5.

The Eree Rukub was a commutation of Kasagee into cash, by taking the average market price for six months of certain villages laid down.

The mode adopted for the collection was as follows: when the crops were in a forward state, those subject to measurement, that is to say those paying Kasagee, Cash, or Eree Rukub, were visited by an Ameen or appraiser, who recorded every cultivator's field, estimating its extent, and remitted such portion of it as he considered had failed. When these returns were received, measurers were sent out in bands of one Darogah and two assistants, to measure the lands. From the latter was deducted the quantity remitted, and the remainder was assessed by Government. But when the extent of land, as estimated by the Ameens, varied with the actual measurements of the Darogah, a proportional

decrease was made in the remission, called Bazyaft Pulo, or refunded remission. Thus: in appraisement the land of A is entered as 12 beegas, of which 4 beegas are given in remission, and 8 beegas remain, on which rent is to be taken; but by actual measurement the land is found to be only 9 beegas, the proportional remission on which would be only 3 beegas; the difference of 1 beega is therefore assessed, and entered as Bazyaft Pulo. When all the above documents are received by Government, the Atsatah or accounts of the season are made up, and the Zumindars, who pay monthly instalments in advance upon account, are then called on to pay any balance which may appear against them, together with fees, &c.

With regard to Buttaee lands: when the crops were tolerably forward, field watchmen were appointed, who received in Chandookah Rs. 2 each per mensem from Government, and subsistence from the cultivators. When the corn was ready, a Buttaeedar went to each granary, and first laid aside a portion, from which fees, &c. were taken, and divided the balance between Government and the cultivators, in the standard proportion of the village.

As the Zumindars had been compelled to meet extortion with evasion, the Kasagee rents were the most agreeable to them, as it opened the way for so much chicanery in the appraisement and measurement of the crops. The system of the Ameers was to assess the lands at an exorbitant rate, which the farmers could not pay with any profit to themselves, and then to bring it down by appraisement to the highest possible standard at which the remuneration of the cultivators and the exactions of Government could in any way be effected. There was no regularity in the assessment,—lands of the same village were paying Buttaee, Kasagee, and Cash-rents; and the Eree Rukub was the standard rate in certain villages; but in each the average market price was calculated from the records of different villages in the vicinity. This, if the appraisement and measurement could be honestly carried out, would evidently be the fairest mode of assessment that could be put in practice, both for the cultivators and for Government. The following extract from the Atsatah (Estimate) of A. D. 1844, when the above rules were in force, will serve to show the mode of collections above described:—

VILLAGE DUBLEE WACHOLAH.

Land cultivated.....		437$\frac{7}{20}$ beegas.
Viz. Jowaree	429$\frac{1}{2}\frac{1}{0}$	
Till	2$\frac{8}{20}$	
Karlorah	1$\frac{1}{2}\frac{8}{0}$	
Vetch	0$\frac{1}{2}\frac{5}{0}$	
Carrots	0$\frac{7}{20}$	

Hemp	$0\frac{4}{20}$
Moong	$2\frac{5}{20}$
Total.....	$437\frac{7}{20}$ beegas.

Remitted in Appraisement :

Jowaree.....	$199\frac{7}{20}$
Vetch	$0\frac{9}{20}$
Carrots	$0\frac{3}{20}$
Moong	1
Total.....	$200\frac{19}{20}$ beegas.

Remaining for Assessment.... $236\frac{8}{20}$ beegas.

Add Bazyaft-Pulo :

Jowaree.....	$0\frac{16\frac{3}{4}}{20}$
Vetch	$0\frac{1\frac{1}{4}}{20}$
Total...	$0\frac{18}{20}$ beegas.

Grand Total... $237\frac{6}{20}$ beegas.

Jumabundee.

	Beegas.		Kur.	Kas.	T.	P.	C.
Jowaree	$231\frac{3}{20}$	at 9 kasas per beega =	34	39	1	1	2
Vetch.....	$0\frac{5\frac{1}{4}}{20}$	at $2\frac{1}{2}$. „ „ =	0	0	2	2	2
Moong	$1\frac{5}{20}$	at $2\frac{1}{2}$ „ „ =	0	3	0	2	0
		Total....	34	43	0	2	0

Til	$2\frac{8}{20}$	at Rs. 6- 8-3 per beega =	Rs. 15	10	3
Kachrah	$1\frac{19}{20}$	„ 5- 8-$1\frac{1}{2}$ „ =	10	11	10
Carrots	$0\frac{4}{20}$	„ 4- 7-6 „ =	0	14	3
Hemp	$0\frac{4}{20}$	„ 7-10-3 „ =	1	8	6
Total....	$237\frac{6}{20}$ beegas.	Total.....	Rs. 28	12	10

Fees.

On Kasagee crop, assessed $232\frac{1}{20}$ beegas, at Rs. 25-2-4$\frac{1}{2}$ per 100 beegas =	Rs. 58	7	9
On crops given in remission, $200\frac{19}{20}$ beegas, at Rs. 16-18-6 per 100 beegas ..... =	33	3	8
Measurement fees on total cultivation, $437\frac{7}{20}$ beegas, at Rs. 6-4-0 per 100 beegas ..... =	27	5	5
On assessed crops paying cash, $4\frac{15}{20}$ beegas, at Rs. 13-2-0 per 100 beegas ..... =	0-10	0	
Total....	Rs. 119	10	10

	Kur.	Kas.	T.	P.	C.
Total grain receipts.....	34	43	0	2	0
Total cash receipts:					
Rents..... Rs.	28	12	10		
Fees	119	10	10		
Total.... Rs.	148	7	8		

I have purposely selected a small village, and one in which there are only two kinds of rents, Kasagee and Cash.

A list of all fees taken under the ex-Ameers will be found in Appendix C. They were originally very few, but when it was brought to the notice of Government that the measurers and others received certain fees on their own account, they were not only made to give them up, but the fee itself was made a permanent tax at the place,—hence the confusion and multiplicity of them in later times.

The general superintendence of the revenue was in the hands of the Kardars of the Tuppas, each of whom had his establishment and also the Kotwals of villages to assist him. He had the power of granting Puttas,—in fact his sole order was to do the best he could for Government. In most of the Purgunas of Sind, a Mookhteearkar was sent up from the Ameers every season to wind up its accounts, remaining for this purpose about four months, and then returning to the Court; but in Chandookah there was a permanent Mookhteearkar, the celebrated Wulee Mahomed Lugaree, who appears to have been a very able officer. He is stated to have been of a very violent temper naturally, but he endeavoured not to let this appear. There is a saying of him,—"Gahee Wulee, Gahee Boot" (Sometimes a saint, sometimes a devil). He gave himself up occasionally to debauchery, and his neighbourhood was not the best place for women of chastity; he lived at Larkhana. Some of his works remain: one book of his poems is in my possession, and some of the pieces are not much inferior to those of Sadi or Hafiz. His sons at first refused to make their peace with the British after the conquest, but they at last yielded, and are now in possession of their Jageers, some of which are in Chandookah. The land revenue and the other items were frequently sold in contract, the object of the Ameers being to amass as great a sum as possible in advance. I forgot to mention that to Wulee Mahomed is attributed the introduction of the Eree Rukub, at least in its above form; for being himself a well read man, he could scarcely have been ignorant of a similar commutation carried out under the auspices of Akbar, when that monarch gave his attention to the revenue affairs of the empire he had consolidated.

2*nd*, *River Customs*.—These were always farmed out to contractors.

The duties were levied at the different Ghauts on the Indus, and in a very irregular manner.

3*rd*, *Town Duties*.—Also farmed out, and a very profitable tax to Government. I have not now the means at hand for drawing out a table of the rates at which all these were taken, but in Appendix D will be found one showing the amount of transit duty levied on foreign merchandize. The imports into Chandookah were but small, consisting of the articles in the table from Kutchee; and the exports were principally grain, ghee, and dried fruits to the same place.

4*th*, *Taxes*.—These were collected by no fixed rate, but fell most heavily on the Hindoos. They were divided into three kinds, viz. Sarshumari, or poll-tax upon artificers; Bahrah, or tax upon the fishermen; and Peshkush, upon the Hindoo traders. The Sarshumari, being a tax upon Musulmans, was more equitable than the others: it was taken from every shop,—from Rs. 2 to Rs. 5 per annum, according to the trade of the individual. On his death, if his son continued the business, he paid the tax in his father's stead; but if he was too young to work at his trade, no tax was taken from him until he commenced working.

The Peshkush, upon the Hindoos, was taken on each town and village, which had to pay a certain sum annually, and the Hindoos had to settle the proportions each had to pay amongst themselves. No alteration was ever made under any circumstances.

The Bahrah was taken upon each band of fishermen, or Meeanee, in the same way as the Peshkush, the head man being held responsible by Government, and managing the proportional payments; but on the reduction of the band, diminutions were made in the tax. Sind being so entirely an agricultural country, the Ameers evinced good policy in causing the poll-tax to fall on every one not a cultivator. The introduction of a somewhat similar tax in the Tenasserim Provinces by, I think, Major MacLeod, was found to cause an increase of cultivation even in that country, which was in no way an agricultural one.

5*th*, *Liquor and Drugs*.—The contract for the sale of these was always farmed out, but there were no very stringent rules to prevent smuggling, punishment being more severe than frequent.

6*th*, *Fisheries and Ferries*.—Government received one-fourth of the produce, and always sold its share in advance to a contractor.

7*th*, *Gardens*.—The Government share was always so great that there was no encouragement for the plantation of any other than date groves, which require but little care: five-sixths was the usual share, and never less than half. These were also sold in contract every season.

The total amount of revenue said to have been received by the ex-Ameers from Chandookah was eight lakhs per annum; but this I feel

convinced was only nominal. Their arrears ran from one season into the other, and were always very large; and I think we should be nearer the truth if we estimated it at five lakhs absolutely received.

The land revenue under the British Government is collected either in Buttaee at one-third, or in Cash at one-eighth per beega for Khureef, and two-eighths per beega for Rubee crops; the fees on the corn payments being 4 kasas per kurwar, and on those in Cash six per cent. Each Zumindar had his choice, and bound himself down for seven years. The cash and corn payments are about equal in Chandookah. It is hardly yet time to form an opinion upon the working of this system; but I annex some tables, showing the receipts of Chandookah, &c.

Appendix E is a statement showing the cultivation, and land revenue derived therefrom, for the middle crop, 1844.

Appendix F is a statement showing the same for the autumn crop, 1844.

Appendix G is a statement showing the same for the spring crop, 1845.

I have selected the earliest periods, and they may serve to compare with the returns now annually forwarded.

Appendix H is a table showing the extent of cultivation in the spring crops of 1845, 1846, and 1847; in the autumn crops of 1844, 1845, and 1846; and in the middle crops of 1844, 1845, and 1846.

Town and transit duties were abolished from 1st January 1846, and a frontier duty established, as per Proclamation. Quarterly returns of exports and imports since that period have been sent in to Government.

All taxes were likewise abolished on the same date, which caused universal satisfaction, and was a greater boon to those affected thereby than the change of revenue collections was to the cultivator, if it prove eventually that the latter was really a boon.

The other sources of revenue continue the same.

The annual receipts of Chandookah are three lakhs, and its average cost of establishments, and revenue charges, Rs. 20,000.

Appendix I is a table showing the actual receipts in cash for the year 1845, in which the grain sales are not included.

Appendix J is a statement showing the grain receipts for the same period.

Appendix K is a statement showing the disbursements for the same year.

These tables would have been more useful, accompanied by similar ones for 1846; but being in another district, I have not the means at hand for preparing them. Great reductions in the establishments have been made since 1845. We now come to consider,

V.—AGRICULTURE AND MANUFACTURES OF CHANDOOKAH.

The soil, as before observed, is rich, and highly favourable for cultivation, and may be considered as a new soil, as yet unexhausted by husbandry. There are three agricultural seasons, the Rubee or spring, the Peshrus or middle, and the Khureef or autumn crop. The Rubee cultivation is of three kinds, according to the nature of the soil, and the influence exercised upon it by the waters of the inundation, viz.

1*st*, *Bosee*.—Cultivation upon lands left by the inundation, which, after ploughing and sowing, requires no further care in watering.

2*nd*, *Sailabee*.—Upon lands left by the inundation, but on which the crops require subsequent waterings during growth.

3*rd*, *Khooshkdhakah*.—Upon lands entirely dependent upon artificial irrigation both for early and subsequent waterings.

In the autumn crop there are two distinctions,—

1*st*, *Mok*, or lands over which the water can flow from canals without further aid.

2*nd*, *Churkee*, for which Persian wheels are required, to raise the water to the surface.

The seed is sown either from the hand, which is called Chatree, or by means of a tube fixed to the plough, and having a wooden funnel at the top, called a Naree, through which the seed is passed when the earth is being ploughed for the last time, the labourer supplying it from a bundle attached to his waist. The last mode is that generally adopted for wheat and barley, as a greater supply of seed is required for Chatree; the latter is adopted in the sowing of peas, gram, sarshaff, &c.

The irrigation, as before observed, is either from canals or wells, except the Bosee lands. For the clearing of the former, statute labourers are called for, each village furnishing a quota, according to the quantity of land watered from the canal. The Ghar receives labourers from almost every district, amounting in all to one thousand, who are employed from six weeks to two months, receiving a subsistence from Government, and wages from Zumindars, varying from three to five rupees per mensem. This is the hardest labour a man can be subjected to; and whilst it is necessary that the canals, on which the whole cultivation depends, should be kept in order, still it is desirable that the number of labourers to be furnished should be equitably established. On the clearing of large canals, the workmen are accompanied by one or two duns, and the scene is one of great interest; but a comparison may justly be drawn between the honest cultivator thus toiling to his utmost for subsistence, and the convicted criminal lounging through the day

in the receipt of a competency. After the workmen return to their homes, they have further toil in preparing the branch canals, which carry the water to their villages. The mode of raising the water, where required, is by Persian wheels, which in the hot weather are worked at night.

The implements of husbandry are the Hur, or plough, which is much smaller than that used in India; it is drawn by two bullocks.

The Sahur, or harrow, which is a heavy log of wood, drawn by four bullocks, a man standing on each end of it. It is used before the last time of ploughing, and sowing the seed.

The Naree, or funnel, before spoken of.

The Datrah, a curved hook, with teeth like a saw, used in reaping.

The Kooriah, or hoe, a small implement for weeding, &c.

The land is usually allowed to lie fallow for one year between the crops, except in cases of land freshly cleared from jungle, which is sown usually for two or three consecutive seasons at first. The Sindees have no notion of the rotation of crops; but sometimes, where indigo has been sown, they plant cotton, to protect the latter from the sharp winds, by the short shooting stems of the indigo.

Manure is used for some crops, but only cattle-dung; the waters of the inundation bring a slimy matter, which is highly conducive to fertility. The stubble is also burnt, and the ashes allowed to mix with the soil. Salt is sprinkled over tobacco during its growth.

Hoeing is only used in the cultivation of tobacco and cotton.

Rice is sown in small patches, and afterwards planted out with the hand.

Appendix L is a table showing the quantity of seed of each kind required per beega; the quantity of produce; the number of waterings; the quantity of manure used; the season of sowing and reaping, and the number of maunds per kurwar of each kind of grain.

Appendix M is a comparative statement of the cultivation of the principal crops taken from the three seasons of 1845 and 1846, from which may be seen what grains are most frequently sown.

In Appendix N I have endeavoured to show at one view the relative value of each crop to the cultivator.

I will conclude this portion of the Report with a few remarks on the cultivation of sugar and cotton.

The soil is well adapted for the growth of the sugarcane, but it is not extensively cultivated, owing to the difficulty of watering it during its early growth. On this account, it is usually found in small patches of from five to eight beegas, about a well. In the vicinity of the river it is grown in larger quantities, but not more than a hundred beegas is now annually grown in Chandookah. The canes are of two

kinds, of a light and dark colour; of which the first is most esteemed, both for the quality and quantity of produce. Both kinds are planted in January or February, and cut in November or December. More manure is used for this than for any other cultivation; it consists of cattle-dung, and about a hundred maunds are consumed per beega. The cane is attacked by white-ants at the time of planting, if there is not a large supply of water. In the months of July and August it is attacked by a red ant, which ruins the crop, unless averted by rain, on the fall of which these insects disappear; but no means are taken by the cultivators to destroy them. The cane is irrigated every fourth day. During the first five months the water is obtained from wells, and afterwards from the canals; in some places, at a distance from the river, the watering is from wells throughout. An interval of a year is allowed to elapse between the crops, during which interval the land lies fallow. The cane is usually sold standing, and is cut and manufactured by the purchaser. Sometimes the grower receives a share of the manufactured article in part payment, but it is very rare to find the grower manufacturing the Goor. The average quantity of Goor produced per beega is 20 maunds; and its price on the spot about Rs. 5 per maund. Eight maunds of juice are produced from a thousand canes, and from 10 maunds of juice is produced 1 maund and 25 seers of Goor. It requires one pair of oxen and eight men, for twenty days, to work up and manufacture into Goor one beega of cane. The Goor is mostly consumed in the district. The average expense of cultivating the cane is Rs. 60 per beega, and the average value of the crop Rs. 90.

The cotton grown in the district is of a very fine description, and, as far as I can judge from notices which appear in the Journal of the Agricultural Society, superior to the indigenous produce of most parts of India. In some situations it grows to a great height,—I have picked the cotton from plants reaching to my shoulder when riding on a camel. The fibre appears long and fine. Cotton from the Mauritius has been found to thrive well, and I tried a small quantity of Pernambuco seed, but, owing to the early season at which I planted it, the crop failed. The seed had also sustained some injury during its transit from Calcutta, at the latter end of the rains. The cultivation of cotton is conducted in two ways, viz. Sailabee and Bosee: the first requires frequent watering after being planted, and the seed is sown on the sides of ridges, after the surface has been inundated, the holes being made at a distance of about a foot and a half from each other. The Bosee cotton is sown on lands left by the inundation, and on the surface: no after waterings are required, the dew, which falls in great quantities, affording sufficient moisture;

the only care required is to keep the earth about the stems free from weeds, and loose. The cotton is sown at the end of February or March, and picked in July and August. After picking, the cattle are turned in to graze, and the crops are then left for a second year, the produce of which is said to be superior to that of the first year's growth. Cotton of the first year is called Neree, that of the second Moondee. Cattle-dung is used as manure, in the proportion of about twelve maunds per beega. A beega will produce on an average three maunds of Phootee, or cotton and seed together. The following is the result of some investigations which I made very carefully :—

Four pounds of Phootee, after exposure to the sun, and being beaten, are equal to 3 lbs. 13 oz., a loss of ¾ oz. per lb. being sustained in the process.

From this is obtained,—

Seed.....	2 lbs. 12 oz.
Uncleaned cotton.....	1 lbs. 0 oz. 11 grs.
	3 lbs. 12 oz. 11 grs.

From the uncleaned cotton is obtained of clean wool 1 lb. nearly; thus we get following proportions :—

Wool.....	$\frac{4}{16}$ or $\frac{1}{4}$.
Seed.....	$\frac{11}{16}$
Loss	$\frac{1}{16}$

The market price of Phootee averages 14 seers per rupee, of seed 30 seers per rupee, and of wool 3 seers per rupee.

The mode of separating the seed from the cotton will be explained in treating of manufactures. I purpose trying several experiments with various kinds of seed in the ensuing season, the results of which shall be reported to Government, as I feel convinced a very superior kind of cotton may be grown in Sind for exportation in the raw state.

The manufactures of Chandookah are as follow :—

1*st*.—Weaving, by which the country is supplied with a coarse cotton cloth, in universal use; and none but the poorest villages are without their weavers. The wool having been purchased in the raw state, is made over to the cleaners : the instrument for beating it is the common triangular one, suspended from the roof of the building, the string being of gut: the cotton is not much injured in this process. The wool is then spun by the women of the establishment. The thread is then drawn out upon rows of small sticks, and afterwards soaked in water and flour. When taken out, it is again drawn out, and exposed to the air. In this state it is rubbed with a large brush of tamarisk, and is then ready for the weaver. The weaving is the same as that adopted in Ceylon, the machine being suspended from

the roof, and a pit made below for the feet of the manufacturer, by which the upper and lower skeins are raised and depressed, to admit of the passage of the needle. The cloth is generally made from a foot to a foot and a half in breadth, and thirty-six feet in length. Two of these pieces can be made in three days. The average price of wool is three seers per rupee, and from this three and a half pieces can be manufactured: the cloth is sold at an average price of fourteen annas; so that as the whole process, except cleaning the wool, is carried on by the household of the manufacturer, his profits may be calculated at a rupee per diem. Under the ex-Ameers it was much more, for prior to the introduction of foreign cloths the price of the country produce was two yards per rupee. The poll-tax paid by the weavers was high, viz. eight rupees per annum on every married weaver, and four rupees on each unmarried one;—the latter had to entertain hired workwomen for spinning.

There are also silk weavers, but the silk is imported from Kandahar, and sometimes dyed in this country. Loongees were very well made formerly, of silk and gold; but the only kind still manufactured is a checked cotton, with silk borders.

The dyers were a numerous class, for the under garments of the Sindees of all classes were dyed, the common colour being a dark blue. The poll-tax upon a dyer was nine rupees, as he required no hired assistance in the carrying on of his trade. The following are the modes adopted in dying cloths of the undermentioned hues:—

Red.—Twelve chuttaks of bitter oil are mixed with the same quantity of Iskhar, and half a seer of camel-dung. The cloth is placed in the above for four days, and then dried in the sun for eleven days. It is then cleaned, and put into water with two chuttaks of tamarisk berries, after which it is again dried, and then put into an earthen vessel, containing two chuttaks of alum, and again dried and washed. Twelve chuttaks of Munjeet are then put into a large copper vessel, with twenty seers of water, and boiled. The cloth is placed in this until well coloured, and then finally dried and cleaned.

Saffron.—Two seers of safflower, well mixed up with water, and two chuttaks of Iskhar, are trodden out with the feet. This is placed on a blanket, suspended between three poles; water is poured upon it, and whatever passes through the blanket is of use. The cloth is placed in the vessel which receives the above, and a quarter of a seer of dried limes, finely cut, is added, and the cloth remains till coloured.

Green.—The cloth is first coloured in a quarter of a seer of indigo, mixed with water, and then put into two seers of water with one chuttak of fine turmeric, taken out, and dried. Six chuttaks of dried pomegranate skins are then boiled in a copper vessel with five seers of water,

until three seers of water remain, into which the cloth is placed, and afterwards again dried. One chuttak of alum is then boiled in a quarter of a seer of water, and being afterwards mixed with two seers of cold water, the cloth is put into it, and the final colouring obtained.

Yellow.—A quarter of a seer of turmeric is mixed and beaten with half a seer of dried pomegranate skins, in an earthen vessel, with three seers of water. The cloth is first placed in the above, and then dried. One chuttak of alum is then put into the same preparation, and the colour is finished.

Dark Blue.—A quarter of a seer of indigo, a quarter of a seer of Iskhar, and one chuttak of lime, are mixed with a great quantity of water, and allowed to remain from sunset till sunrise. Four pieces of cloth are then put into it, and afterwards dried. This process is repeated three times, when the colour is obtained.

The above are the only colours in use: of the ingredients, safflower, indigo, Iskhar, limes, pomegranate skins, lime, oil, tamarisk berries, and camel-dung are the productions of the country; but turmeric, alum, and Munjeet are imported. The Iskhar is a low shrub, but my examination of it has not yet led me to ascertain its botanical name.

Paper is manufactured at Larkhana, but it is not of a very fine description. Old fishing-nets and wrought hemp are beaten up in water with the charcoal obtained from the Iskhar, and lime: this is done in a pit large enough for a man to work in. A heavy wooden hammer is the instrument employed, with a horizontal beam. This is worked by two men treading upon the latter, whilst a third in the pit is occupied in placing the material under the hammer. These men are hired by the manufacturer for about twenty days at a time, but he makes the paper himself, from the above preparation made into cakes. This is picked in pieces, and put into a cistern of clean water. The manufacturer sits on the edge, and immerses a wooden frame, upon which is spread a fine roll of thin strips of bamboo, opened out by means of two pieces of wood at either side. Upon this the particles are allowed to settle, and the lateral pieces of wood being removed, the bamboo roll is inverted upon a clean board, and being rolled up, leaves the sheet of paper upon the board. After the paper is dried, it is rubbed and polished with a large stone. A finer kind of paper is made from pieces of China and Europe paper beaten up, instead of hemp. From twelve to fourteen quires of paper can be made in a day: the average price of it is from three to four quires per rupee, according to the quality. The poll-tax paid by each paper manufacturer was Rs. 8-12-0 per annum.

Oil and sugarcane pressers did not manufacture on their own

account, but were employed by the Hindoos at four annas per diem. They had to keep two bullocks, and paid a poll-tax of three rupees per annum. The machinery employed is a large wooden mortar, and rolling pestle, turned by oxen,—simple, it is true, but nevertheless completely though slowly expressing the juice. About six and a half seers of oil seed (mustard or sarson) are pressed at a time, from which about a seer and a half of oil is obtained; twenty-six seers of seed can be pressed in a day, or six seers of oil. The seed, after pressure, is sold at one rupee per maund, as food for bullocks. With regard to sugarcane, the Goor is consumed in the country, but not refined into sugar. Imported Cheenee is crystallized by the shopmen in the usual simple way. Coarse leather is manufactured, and a common kind of salt, all over Chandookah. But I will proceed to notice

VI.—CRIMINAL AND CIVIL JURISPRUDENCE.

The Mookhteearkars and Kardars were, under the ex-Ameers, as much the Judges and Magistrates of their several districts as the Collectors of Revenue. In the larger towns there were Kotwals, whose jurisdiction, however, did not extend beyond. The apprehension or detection of criminals devolved principally upon the injured party. It was a fixed rule that the Zumindar of any village into which the footmarks of thieves were traced should be held responsible for the value of the lost property, unless he could show that the footmarks went beyond it. If he produced the thief, the latter was deprived of the whole of his property, and the surplus, over what was claimed by the person who had been robbed, was carried to the credit of Government: if the thief was a poor man, he was thrown into prison until his friends made good the claim against him, and the fine to Government. The Ameers made no allowance to their prisoners, but, unless supported by their friends, they were sent through the streets begging, and what they thus obtained, in excess to what was required for their bare subsistence, became the perquisite of the Kotwal of the town. Owing to the circumstance above alluded to, the Zumindars of villages took care to have at least one tracker with them, and these were brought up to their business from boyhood, and were generally very expert: thefts have been traced after an interval of time had elapsed, and to a distance from the place of perpetration, almost incredible,—through the running stream, over the newly ploughed field, through standing corn, over the hard soil of the desert, through the crowded town, and along the high road, the criminal was hunted down. This never-failing pursuit, combined with the rigorous treatment of prisoners, tended greatly to the repression of crime, at least of a predatory nature. In cases of cattle-theft, four times the number of cattle stolen was taken from the thief, three-fourths

being taken by Government; but there was no regular scale of punishment: a fine where the prisoner was in tolerable circumstances was always resorted to, but otherwise a long imprisonment, as above described, and in some instances death was the punishment inflicted. The ordeal of fire and water was very frequently resorted to in cases where the prisoner declared his innocence, and there was no direct proof. The trial by water was as follows:—the accused was placed under water, whilst a man shot an arrow from a bow as far as he could: another man was sent to pick it up; and if the prisoner could remain under water until the arrow was brought back to the spot, he was declared innocent; but if he lifted his head out before that time, he was presumed guilty. The trial by fire was equally difficult: a trench was dug seven cubits in length, and filled with firewood, which was lighted, and the accused, with his legs and feet bound with plantain leaves, had to go from one end to the other through it, his escape from injury deciding his innocence. A Moonshee of my acquaintance declares he saw a man establish his innocence in this way, in the presence of Meer Sohrab, the father of the reigning Meer of Khyrpoor. The lifting up red-hot iron was likewise a satisfactory proof of innocence. The ordeal of fire was called in Sindee Churr, and that of water Toobee. Numerous fees were levied by the authorities during the detention of prisoners, and one-fourth of all stolen property recovered was paid by the owner to Government, who received, in addition, the fine imposed on the thief. Thefts were scarce,—much scarcer than they have been under the British Government. Although so severe towards comparatively small crimes, the Ameers exercised great leniency in the more serious offences: a man was held justified in murdering both parties when he had cause merely to suspect a female relation of adultery; and should either party escape at the time, his life was taken at any future period when the aggrieved party might meet him. In other cases of murder, death was seldom the punishment awarded, confiscation of property and imprisonment being the more usual course,—the latter for an indefinite period, until the friends of the prisoner, or some of the numerous "holy men" about the Court, sued for and obtained his release. Mutilation of the hand or ear was occasionally inflicted, but the latter principally in cases of fraud on the revenue.

We will now turn to the time of the present Government.

When it became known that the prisoner in jail was as well, and in many cases better off than the labourer, the cultivator, or the artisan; receiving his anna per diem, and doing little, if any work,—feeling, too, that his family were comfortable at home, and that, in cases of theft, the property was concealed, and ready for him on his release, it

naturally followed that imprisonment lost all its terrors; and I am of opinion that many cases of cattle-theft occur, in which the sole object of the prisoner was to get his jail subsistence. This of course was owing to the suddenness of the change; but no great diminution can take place until the jail system is made more rigorous. If disgrace is supposed to be one of the consequences of imprisonment, that can hardly be the case when the punishment is carried out at Shikarpoor, many miles from the residence of most of the prisoners. At present, too, all are worked together, live together, and sleep together; no reformation can take place, but much contamination; and even with more rigour but little can be effected until a classification of convicts is made. It cannot be supposed, either, that sepoys of the line, who guard the prisoners at work, can care for the quantity of work done; and this mode of guarding them prevents the services of the convicts being employed in the repair of bridges, &c. beyond the limits of cantonments.

There are seven or eight police stations in Chandookah, for the prevention and detection of crime, but they serve more as central points, to which the thieves may be taken *when captured*, and where all the parties may be collected before being sent in to the Magistrate. I have observed that in most cases the perpetrators of crime have been in the first instance apprehended by the suffering parties unaided. The police, however, are always ready and willing to give assistance, when applied for, but they must in a measure be dependent on men of the country, acquainted with the locality, and the language and customs of the people.

I beg leave to refer to the criminal returns annexed (Appendix O), showing the number of persons apprehended, the number committed for trial by military commission, and the number of convictions by the Magistrate, and acquittals. Those summarily disposed of are cases in which the punishment awarded does not exceed three months' imprisonment; those requiring a greater punishment were originally confirmed by His Excellency the Governor, and latterly by the Judge Advocate General.

These returns are for the years 1845 and 1846, made up yearly.

From the abstract of these, it will be seen that the crime of murder was most frequent in the first half year of 1845,—they were all in cases of adultery; but such murders have apparently become of very rare occurrence since the punishment of death or transportation has attended the crime. Numerous cases of suicide of women are alleged to have lately arisen, but, from the attendant circumstances, it is much to be feared that the suicide is only nominal. It will not be so easy to stop a practice of such long standing as this barbarous custom,—to curb the feelings of a nation: the change must be gradual, and a less severe

punishment than that of death might preclude the necessity of concealment, and render detection and punishment more certain. I would here observe, that when capital punishment is carried out the fact is not, or was not always known to the friends of the criminal, owing to the execution taking place at Shikarpoor. An old woman once came to me, asking what her son's fate had been, who had been committed by me for trial for murder. I had received no information regarding the case since it left my court, and had to obtain the information from Shikarpoor: the man had been hanged two months before!

Assaults were slightly more numerous in 1846, but they were nearly all committed by Hindoostanees.

Robbery with violence was less in 1846, and in the present year there has been but one case. In the two years for which the returns are annexed, small bands of Beloochees were generally the perpetrators.

A great increase is shown in the returns of thefts for 1846, but this I attribute in a great measure to the increased vigilance of the Police, which has been very visible, and also to the people having acquired the habit of preferring their complaint at once, instead of trusting to their own resources; for at the present day, unless a tracker is sent by the Magistrate, he generally contents himself with tracing for a few miles, and then declaring that he has lost the marks. They are, too, bribed, and are not as well paid as formerly. It would, I think, be most beneficial to retain some of these men as Government servants in each district; they are most valuable attachés to the police. The recovery of stolen property is now so uncertain that a per-centage would not be sufficient inducement for them to take service.

In 1846 there was a great decrease of petty cases,—these were small pilferings, &c., principally in the town of Larkhana.

On the whole, the return is favourable, the cases being less, the apprehensions more, in 1846, than in the preceding year. The number of convictions, too, had increased, notwithstanding that the Sindees, accustomed now to our courts, almost invariably plead "not guilty," and summon a host of witnesses for their defence, whereas formerly they seldom denied their guilt.

The apprehension of criminals must soon solely depend upon the police, and other Government servants, for the Zumindars are daily becoming more averse to interference, even if they do not actually screen the offenders. The tracking system was a great preventive of this listlessness, but its *partial* adoption might lead to much injustice, as it would be easy for them to name any one against whom they had a spite as the thief, and *make up* a case of it. In the case of screening the thieves, they have not the same dread which they had formerly; for under the Ameers, any man who could be proved to have given food

or shelter to a thief, even without any guilty knowledge of or participation in the crime, was held equally guilty until the capture of the robber,—his property was seized, and he was imprisoned; and unless he eventually succeeded in apprehending the guilty party, he was, equally with the thief, a ruined man.

There is no doubt but that the Zumindars could be a most useful body to the Magistrate: they are men of influence in their neighbourhood, and are acquainted with the characters of the villagers, who are mostly their own cultivators, or in some way connected with them. I have had frequent occasion to remark the degrees of alertness, in the pursuit of thieves and murderers, according to the example set by the Zumindars. One instance will suffice: when my treasury was robbed by the police sentry over it, I gave immediate notice through the districts. The Zumindars near Larkhana took no steps whatever, and the man got down to the jungles in the vicinity of the river. When I arrived there myself, I found the Zumindars engaged in active search, and the *whole country* was up in pursuit. The man was at last seen, and a villager attempted to seize him as he was getting into a boat to push off: in so doing the poor man had his hand entirely cut off by the robber, who was finally captured by the Sindees. There are two principal causes of impediment to interference on the part of the Zumindars,—

1*st*.—They do not like taking an active part in the investigation, for fear of becoming necessary witnesses in the case, and thus being summoned, first to the Kardar, and then sent to the Magistrate, which absence at certain seasons of the year entails much loss upon them.

2*nd*.—The Zumindars are frequently treated with considerable disrespect when engaged in the pursuit of thieves and others. I have already alluded to the inferiority and corruption of the trackers of the present day, owing to which, there is in some cases no reason whatever to call on the Zumindar of a village to produce the thief, the traces having been wrongly taken there. A case was brought before me a short time ago, where the pretended tracker turned out to be the principal thief, but in the mean time he had thrown suspicion on, and caused much trouble to, many parties, but especially to the Zumindars of villages. When I first came to this district in 1844, the evidence of a tracker was rightly held to be the best procurable, but now, in three cases out of five I consider it worthless.

There are no records to show the exact amount of crime under the Ameers; but as a fine was the invariable attendant of the detection, which few escaped, and these fines were entered in the accounts, an approximation might be gathered from those documents. The requisite classification, however, would be a work of much time and trouble, but

we may rely on the fact that the crimes of theft, cattle-stealing, &c. were much rarer than at present, but murder, and crimes attended with violence, more frequent.

Taking my estimate of the population of Chandookah at 40,000 souls, and the annexed statement of crime, showing an average total of convictions, in the years 1845 and 1846, of eighty-one, we may calculate the proportion of crime at 1 in 494 for that period.

The prisoners at Larkhana are confined in the fort, in the cantonments, under a guard of the Sind Camel Corps, and they receive an allowance of one anna per diem; witnesses detained receive from two to four annas per diem, according to circumstances. When the sentence is imprisonment with hard labour, the convicts are forwarded to Shikarpoor to undergo the same.

There were no established courts for the administration of civil justice under the ex-Ameers: suits were preferred in the first instance to the Mookhteearkar or Kardar, who sometimes settled them himself, but more usually referred the parties to the Kazee, or a Punchayet, or to Moonsiffs selected by the parties.

The Kazee settled all disputes connected with hereditary property, marriage claims, &c., according to the rules of Mahomedan law. He decided which party was to take the oath, and, having investigated the case, gave a written decision to the successful party, which was acted on. These documents were generally drawn out in a very careful manner, and had all the weight of a Meer's Sunud.

A Punchayet was assembled in the case of Hindoo litigants, and generally in cases where local customs were called in question. It consisted in the first place of all the Hindoos of the town, with the Mookhee or head trader presiding; but they generally selected a smaller number themselves, to investigate and decide on the case.

Moonsiffs were appointed in other matters, both by Mahomedans and Hindoos, each party nominating two. This court conducted its proceedings in various ways, sometimes deciding according to written documents produced, and at other times allowing the matter to be settled by the statement of one party made upon oath, when the other party consented. The office of Moonsiff was looked upon as one of honour, and complaints against their decisions were and are very few. The most common way of deciding boundary disputes was by calling on one of the parties to mark it out, with the Koran upon his head, in the presence of the Moonsiffs. The proceedings of this court were likewise recorded, and given to the successful party, but no records of any decisions were kept by Government under the rule of the ex-Ameers.

The same courts are still assembled by the Magistrate, but I have found that where no local customs are concerned, and the accounts are

not very intricate, the people prefer the Magistrate to settle the case himself; and I very seldom had to assemble a court, except in cases of hereditary property.

Appendix P is a return of civil suits preferred in my court during the years 1845 and 1846, exhibiting the mode and nature of decision, and the amount of property under litigation.

Suits connected with land are in many cases very intricate, even where the right to the land is undoubted, in consequence of the various *local* distinctions of Zumindaree. One instance will suffice: I have already mentioned, under the head of land tenures, the fees called Wajah and Lapa Zumindaree. In some villages the sons of a deceased landholder divide the estate, each receiving the Lapa upon his own share, and all paying Wajah to the eldest, on whom it falls to entertain strangers, or Government officials visiting the village. In others, again, the land is not divided, but the eldest son is considered the proprietor of the whole, and receives both Wajah and Lapa, the younger sons receiving portions of land to cultivate. On the death of the second generation, the intricacies involved may be imagined. Such cases are most satisfactorily settled by Moonsiffs.

Having thus considered the six heads proposed, I shall conclude with a few

GENERAL OBSERVATIONS.

The Native historians of Sind describe the climate as a delightful one, Upper Sind being warmer than Lower, but the mornings and evenings in both very cool. I cannot agree with them, however, in this respect; but Chandookah has been more healthy both for Europeans and Natives than any other part of Upper Sind. It is, however, beyond the influence of the monsoon, and the hot weather continues therefore without intermission from the middle of April to the middle of October, unbroken by a fall of rain, and very trying to the constitution. The historians above referred to mention a third season, Bahar, or spring; but the change from the cold to the hot weather is scarcely gradual enough to warrant this classification. In June or July thunderstorms occasionally occur, with a fall of rain preceded by a duststorm. For two or three days previously the atmosphere is close, and loaded with fine dust; but immediately before the bursting of the storm, huge masses of dust are driven in black clouds before the wind, obscuring the whole surface of the country, and causing generally many severe accidents. These storms are not always attended with rain, but they serve temporarily to clear the atmosphere. The ranges of the thermometer do not indicate any great variation during the hot months, the mean temperature being about 96°.

The cold weather is very pleasant and salubrious, but attended with cutting northerly and easterly winds ; frost and ice occur in the coldest months.

In September and October ague and fever are common, and also rheumatism ; the fever is attended with great prostration of strength. Ophthalmia is likewise a prevalent disease. The district is frequently visited with cholera of a very virulent kind : in July 1845 I had occasion to be out in the districts when it was raging ; at one village, Kumber, twenty persons were attacked and died before noon of the day on which I arrived there, and all the country I found deserted, the people flying to the foot of the hills to escape the scourge. In 1846, cholera again visited the district, but in a much milder form : in Appendix Q will be found a return of deaths from cholera in that year.

The Larayee dialect of Sindee is that spoken in Chandookah, and it differs much from the Sarhaikee, or that heard north of Larkhana, which latter is considered to be a dialect of Punjaubee. The Persian language is that of the courts, and is understood by most of the principal Zumindars, and all the Hindoo officials.

Appendix R contains some information not previously mentioned, viz. the number of ploughs and villages, of shops, and of the different kinds of artificers.

APPENDIX A.

Table showing the Length, Breadth, and Depth of the Canals in the Chandookah Purguna.

Numbers.	Canals.	Length in Yards.	Depth in Feet.		Breadth in Feet.	
			Near the Mouth.	Towards the Tail.	Near the Mouth.	Towards the Tail.
		Yards.	Feet.	Feet.	Feet.	Feet.
1	Mittah or Nusrut	25,000	21	15	12	4
2	Heerah	22,000	10	7	9	3
3	Khyrah	28,000	15	12	9	5
4	Beerah	30,000	18	15	10	6
5	Datah	42,000	21	10	9	4
6	Shah	35,000	18	12	11	7
7	Maksoodah	25,000	15	8	9	5
8	Nourung	16,000	40	30	12	9
9	Cheelah (continuation of above).	18,000	30	10	9	3
10	Meerwah	15,000	15	8	8	3

APPENDIX B.

Statement of the Number and Depth of Wells, and the Number of Minor Canals, in the Chandookah Purgunæ.

Numbers.	Tuppas.	Number of Wells.			Average Depth of Wells.	Number of Minor Canals.	Remarks.
		Pukka.	Kucha.	Temporary, from Canals.			
					Feet.		
1	Bukapoor.....	202	15	178	20	70	
2	Myl Lahory.....	73	15	67	16	53	
3	Nya Derah	56	11	273	45	28	
4	Khyrah Guchul	92	7	230	30	77	
5	Anderoon Ghar	12	.....	210	15	17	
6	Nalah Datah	28	9	15	26	45	
7	Nalah Maksoodah ...	25	17	44	36	47	
8	Myl Morady.....	42	56	81	18	80	
9	Esaw	38	2	13	20	31	
10	Warah	2	28	93	20	13	
11	Kumber	46	12	.....	18	34	
12	Ruttah Derah	33	8	167	40	40	
13	Shahpoor	43*	18	56	30	123	
14	Chujrah	31	24	14	22	90	
15	Wagun.....	18	11	13	25	24	
16	Lal Dariya	180	21	328	30	46	
17	Futtehpoor	56	2	212	35	53	
18	Anderoonee Beerah...	20	8	36	35	6	
	Total.....	997	264	2,030	...	877	

In 1846 this is included wells out of repair, as well as those in use. there were 256 wells out of repair.

APPENDIX C.

Tabular Statement of Fees levied by the Ex-

Numbers.	Tuppas.	On Lands paying Cash-rent.																					
		Shookuranagee per Beega.			Measurer's Fee per Beega.			Neem Annagee per Beega.			Patwaiee's Alms per Beega.			Patwaiee's Fine (extra) per Beega.			Patwaiee's Fee (extra) per Beega.			Total per Beega.		
		Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
1	Bukapoor	0	1	7	0	0	4¾	0	0	6	0	0	7¼	0	0	9	0	0	6	0	4	4
2	Myl Lahory	Do.			Do.			Do.			Do.			Do.			Do.			0	4	4
3	Anderoonee Beerah.	Do.			Do.			Do.			Do.			Do.			Do.			0	4	4
4	Lal Dariya	Do.			Do.			Do.			Do.			Do.			0	0	9	0	4	7
5	Anderoon Ghar.....	Do.			Do.			Do.			Do.			Do.			Do.			0	4	7
6	Futtehpoor	Do.			Do.			Do.			Do.			Do.			Do.			0	4	7
7	Nya Derah	Do.			Do.			Do.			Do.			Do.			Do.			0	4	7
8	Ruttah Derah	Do.			Do.			Do.			Do.			Do.			Do.			0	4	7
9	Maksoodah	No lands paying Cash-rent.																					
10	Myl Morady.....	0	1	7	0	0	4¾	0	0	6	0	0	7¼	None.			0	0	6	0	3	7
11	Myl Wagun	Do.			Do.			Do.			Do.			Do.			0	0	9	0	3	10
12	Warah	Do.			Do.			Do.			Do.			Do.			0	0	6	0	3	7
13	Khyrah Guchul ...	Do.			Do.			Do.			Do.			0	0	9	Do.			0	4	4
14	Bheronee Beerah...	Do.			Do.			Do.			Do.			Do.			Do.			0	4	4
15	Kumber.....	Do.			Do.			Do.			Do.			Do.			Do.			0	4	4
16	Chujrah.....	Do.			Do.			Do.			Do.			Do.			Do.			0	4	4
17	Esaw.....	Do.			Do.			Do.			Do.			Do.			Do.			0	4	4
18	Nalah Datah.....	Do.			Do.			Do.			Do.			Do.			Do.			0	4	4
19	Nalah Shah	Do.			Do.			Do.			Do.			Do.			Do.			0	4	4
20	Lalah (village)	No lands paying Cash-rent.																					

N. B.—The fees on Kasagee crops were so various, being levied at different rates in almost every Rs. 20 to Rs. 25 per 100 beegas.

Ameers in the Chandookah Purguna, on all Crops.

Fees on Cash paid.			Buttaee Fees.		Kotwal's Fee.	Remarks.
Tahsuldaree on the Amount of Rent per Rupee.	Neem Bhalooiee on Rent and Fees, except Patwaiee's extra Fee, per Rupee.	Total per Rupee.	Per Kurwar on the Gross Produce.	On each Name entered in the Buttaee Records.		
Rs. a. p.	Rs. a. p.	Rs. a. p.	Kas. Toy. Pat.	Kas. Toy. Pat.		
0 0 10¾	0 0 2¼	0 1 1¼	0 2 0	.....		
Do.	Do.	Do.	0 2 0	.....		
Do.	Do.	Do.	1 0 2	.....		
Do.	Do.	Do.	1 2 0	0 1 0		
Do.	Do.	Do.	1 3 2	.....		
Do.	Do.	Do.	3 0 0	.....		
Do.	Do.	Do.	1 3 0	0 2 0		
Do.	Do.	Do.	2 1 0	0 2 0		
			.....	.....		
Do.	Do.	Do.	0 2 2	.....		
Do.	Do.	Do.	.....	.....		
Do.	Do.	Do.	0 2 2	.....		
Do.	Do.	Do.	.....	.....		
Do.	Do.	Do.	.....	.....		
Do.	Do.	Do.	0 2 2	0 1 0		
Do.	Do.	Do	0 2 2	0 1 0		
Do.	Do.	Do.	1 0 0	.....		
Do.	Do.	Do.	1 0 0	.....		
Do.	Do.	Do.	1 2 2	.....		
			3 0 0	0 1 0	When a village paid its rents in Kind, the Kotwal received a fee from the portion laid aside prior to division, but at no fixed rate: in villages paying Cash-rents, the Kotwal received his fee from the standing corn, and 1 toya per wheel. In some villages it was the custom to compound for this fee, by a payment of Rs. 2 or Rs. 3 per season.	Besides the other fees, portions were taken from the grain laid aside, as above remarked, for weighing, &c., and for payment of field watchmen. When the Buttaedar arrived, he gave some of this to the parties, and carried the balance to the credit of Government.

village, that they can scarcely be shown in a statement of this description ; but they averaged from

APPENDIX D.

Tabular Statement showing the Rates of Duty levied on Foreign Merchandize.

Articles.	Per	Duty on Goods.						Duty on Carriage.								Remarks.
		Ijara.		Dilalee.		Soong.		Per Camel.		Per Horse or Bullock.		Per Ass.		Per Bundle.		
		As.	p.	As.	p.	As.	p.	As.	p.	As.	p.	As.	p.	As.	p.	
Copper and Brass	Maund.	7	6	2	6	7	0	2	1	0	7	0	4½	0	2½	
Tobacco, Drugs, Oil, Turmeric, Treacle, Sugar, Dates, Pepper, Mint, Alum, and Rope	Maund.	4	6	1	6	2	0	2	1	0	7	0	4½	0	2½	
Rodang, Ghee, Sugarcandy, Iron, Steel, Cummin Seed, and similar articles	Maund.	6	6	1	6	4	0	2	1	0	7	0	4½	0	2½	
Sewing Silk	Seer.	0	2½	0	2½	0	3	2	1	0	7	0	4½	0	2½	
Silk Pieces	Piece.	0	3½	0	0	0	3	2	1	0	7	0	4½	0	2½	
Indigo	Maund.	11	3	5	0	4	0	2	1	0	7	0	4½	0	2½	
Woollen Clothes	Score.	4	6	1	0	2	6	2	1	0	7	0	4½	0	2½	
Blankets	Score.	4	6	2	1½	2	6	2	1	0	7	0	4½	0	2½	
Sewing Thread	Maund.	6	6	1	6	4	0	2	1	0	7	0	4½	0	2½	
Safflower	Maund.	6	6½	1	6	4	0	2	1	0	7	0	4½	0	2½	Ijara taken per Rupee.
Sacks and Felts	Piece.	0	1½	.....		.....		2	1	0	7	0	4½	0	2½	
Carpets	Piece.	0	6	.....		.....		2	1	0	7	0	4½	0	2½	
Rugs	Piece.	0	3	.....		.....		2	1	0	7	0	4½	0	2½	

APPENDIX E.

Statement of Land Cultivated, and Rent realized therefrom, in the Chandookah Purguna, in Middle Crop 1844.

Numbers.	Tuppas.	Cultivation.			Rent paid, including Fees.			Remarks.
		Extent of Cultivation.	Remitted in Appraisement.	Remaining for Assessment.				
		Beegas.	Beegas.	Beegas.	Rs.	a.	p.	
1	Bukapoor	1,184 1/2 0	55 9/20	1,129 9/20	2,611	7	7	
2	Myl Lahory	497 1/2 0	41 1/2 0	456 1/20	1,043	9	4	
3	Anderoonee Beerah	238 3/20	32 1/2 0	205 1/2 0	425	1	8	
4	Lal Dariya	2,247 1/2 0	183 1/2 0	2,064	4,662	2	1	
5	Anderoon Ghar	992	221 1/2 0	770 9/20	1,890	12	2	
6	Futtehpoor	1,500 1/20	740 1/2 0	759 7/20	1,620	15	5	
7	Nya Derah	2,175 3/20	454 4/20	1,720 1/2 0	4,221	6	7	
8	Ruttah Derah	1,025 1/2 0	295 4/20	730 1/2 0	1,656	11	8	
9	Nalah Maksoodah	204 7/20	44 1/2 0	159 1/2 0	266	9	3	
10	Myl Morady	2,398 7/20	423 4/20	1,975 3/20	4,063	7	4	
11	Myl Wagun	567 1/2 0	73 1/20	494 1/2 0	1,196	14	1	
12	Warah	314 6/20	12 1/2 0	301 1/2 0	581	12	9	
13	Khyrah Guchul	676 9/20	193 1/2 0	482 1/2 0	1,100	2	3	
14	Beronee Beerah	1,054 3/20	549 1/2 0	504 1/2 0	1,032	5	10	
15	Kumber Kundee	675 1/2 0	30 1/20	645 1/2 0	1,429	15	3	
16	Chujrah	256	7 1/2 0	248 4/20	735	14	1	
17	Esaw	233 1/2 0	10 1/2 0	222 1/2 0	595	3	8	
18	Datah Kohawur	93 7/20	8 1/20	85 6/20	225	10	5	
19	Shahpoor	94 1/2 0	47 1/2 0	46 1/2 0	107	13	4	
	Total	16,430 3/20	3,427 1/20	13,003 2/20	29,467	14	9	

* Value of Cotton sold, which was received in Buttaee, Rs. 1,023-9-1.

MEMO.—Total as above ..... Rs. 29,467 14 9
Price of Cotton sold 1,023 9 1

Grand Total.... Rs. 30,491 7 10

APPEN

Statement of Cultivation, and the Land Revenue realized there

Numbers.	Tuppas.	Cultivation.			Rent paid, including Fees.			Grain Receipts for Crops paying in Kind.				
		Extent of Cultivation (measured).	Remitted in Appraisement, and Free.	Remaining for Assessment.								
		Beegas.	Beegas.	Beegas.	Rs.	a.	p.	Kr.	Ks.	T.	P.	C.
1	Bukapoor.....	6,171 1/4/0	2,245 3/0	3,926 1/2/0	9,982	4	5	387	4	0	2	1
2	Myl Lahory.....	10,585 6/0	2,651 3/20	7,934 2/20	15,914	5	3	525	5	3	0	3
3	Anderoonee Beerah	2,036 2/0	849 2/0	1,186 1/2/0	3,882	8	0	49	28	2	2	0
4	Lal Dariya	2,670 1/2/0	1,402 1/0	1,268 1/2/0	601	8	1	341	17	1	0	2
5	Anderoon Ghar ...	1,467 1/2/0	1,019 1/0	447 1/2/0	1,900	1	2	56	25	2	1	2
6	Futtehpoor	2,282 1/2/0	1,334 2/0	948 2/0	2,293	12	6	60	47	1	3	0
7	Nya Derah	2,960 2/0	1,664 2/0	1,295	2,133	13	9	293	2	0	3	0
8	Ruttah Derah	2,434 1/2/0	1,213 1/0	1,221 1/2/0	665	3	4	283	31	2	3	0
9	Nalah Maksoodah..	993 3/0	789 1/2/0	203 1/2/0	53	13	10	29	5	0	3	2
10	Myl Morady	7,443 4/0	666 1/2/0	6,776 3/2/0	10,434	2	6	1,410	43	0	3	1
11	Myl Wagun.....	11,343	1,641 1/2/0	9,701 3/0	27,116	5	9	20	3	0	2	0
12	Warah	31 1/2/0	2 1/2/0	28 1/2/0	46	11	7	242	45	0	3	0
13	Khyrah Guchul ..	895 7/2/0	660 2/0	235	217	10	2	75	22	1	3	1
14	Beronee Beerah ..	42 1/2/0	24 1/2/0	17 1/2/0	9	1	4	74	8	3	2	1
15	Kumber Kundee ..	9,385 2/0	1,313 1/4/0	8,071 1/2/0	19,666	4	11	354	10	2	1	3
16	Chujrah	1,300 4/0	445 2/0	854 1/2/0	2,044	9	9	130	8	1	2	2
17	Esaw	4,523 7/2/0	1,098 1/2/0	3,424 1/2/0	7,723	2	0	167	37	1	0	0
18	Datah Kohawur ..	478 1/2/0	234 1/2/0	243 1/2/0	106	0	9	136	51	1	1	3
19	Shahpoor.....	88 2/0	49 2/0	39 2/2/0	24	8	11	50	28	2	0	3
	Total ..	67,133 7/2/0	19,305 18 1/2/20	47,827 8 1/2/20	1,04,816	0	0	4,688	53	0	0	0

DIX F.

from, in the Chandookah Purguna, for the Autumn Crop, 1844.

Sold from Grain Receipts.					Realized from Grain Sales.			Balance of Grain Receipts.					Total Cash Receipts.		
Kr.	Ks.	T.	P.	C.	Rs.	a.	p.	Kr.	Ks.	T.	P.	C.	Rs.	a.	p.
323	47	0	1	1	6,389	7	2	63	17	0	1	0	16,371	11	7
515	17	3	0	3	8,115	0	5	9	48	0	0	0	24,029	5	8
33	48	2	2	0	668	14	3	15	40	0	0	0	4,551	6	3
287	24	0	0	2	5,987	8	7	53	53	1	0	0	6,589	0	8
53	6	2	1	2	1,130	12	9	3	19	0	0	0	3,030	13	11
42	57	3	0	0	967	5	8	17	49	2	3	0	3,261	2	2
249	41	2	3	0	5,600	2	8	43	20	2	0	0	7,734	0	5
258	46	2	3	0	5,202	10	2	24	45	0	0	0	5,867	13	6
29	40	3	2	2	631	12	11	0	10	1	1	0	685	10	9
1,356	3	0	3	1	22,599	7	5	54	40	0	0	0	33,033	9	11
2	10	1	0	0	79	3	0	17	52	3	2	0	27,195	8	9
224	33	1	2	2	4,933	8	9	18	11	3	0	2	4,980	4	4
57	35	3	2	1	1,168	3	10	17	46	2	1	0	1,385	14	0
33	50	1	2	3	726	0	10	40	18	1	3	2	735	2	2
334	48	0	2	1	4,981	3	9	19	22	1	3	2	24,647	8	8
114	32	0	0	0	2,081	13	0	15	36	1	2	2	4,126	6	9
157	52	1	0	0	2,554	2	5	9	45	0	0	0	10,277	4	5
121	7	3	0	0	2,835	2	9	15	43	2	1	2	2,941	3	6
36	13	0	3	3	642	5	10	14	15	1	1	0	666	14	9
4,233	17	2	3	2	77,294	14	2	455	35	1	0	2	1,82,110	14	2

APPEN

Statement of Cultivation, and the Land Revenue realized there

Numbers.	Tuppas.	Cultivation. Extent of Cultivation (measured).	Remitted in Appraisement, and Free.	Remaining for Assessment.	Rent paid, including Fees.			Grain received for Crops paying in Kind.				
		Beegas.	Beegas.	Beegas.	Rs.	a.	p.	Kr.	Ks.	T.	P.	C.
1	Bukapoor	1,638 1/2 4/8	371 1/2 3/8	1,267 1/4 0	1,343	10	8	82	29	1	0	3
2	Myl Lahory.....	482 1/2 2/8	176 1/2 1/4	305 1/7 3/8	519	9	3	27	3	2	0	3
3	Anderoonee Beerah...	23 1/2 2/8	6 2/4 0	17 1/2 1/8	63	4	10	35	38	2	3	0
4	Lal Dariya	1,826 2/8 0	749 1/2 3/8	1,076 1/2 5/8	1,564	6	7	121	41	3	2	0
5	Anderoon Ghar	4,922 2/8 0	1,060 2/8 0	3,862 6/8	7,329	4	10	23	36	3	3	0
6	Futtehpoor	1,355 1/2 7/8	742 1/2 0	613 1/2 6/8	781	4	4	37	38	2	2	2
7	Nya Derah	3,898 1/2 0/8	385 2/8 0	3,513 2/8 0	3,398	1	6	387	5	2	3	0
8	Ruttah Derah	203 2/8 1/8	74 2/8 0	128 1/2 3/8	183	0	9	7	5	2	1	0
9	Nalah Maksoodah ...	16 1/2 0/8	2 1/2 0/8	14 2/8 0	24	9	8	0	58	2	0	1
10	Myl Morady	3,579 2/8 0	775 1/2 0/8	2,803 1/2 0/8	687	12	10	362	52	0	2	2
11	Myl Wagun.....	1,233 2/8 0	176 2/8 0	1,056 1/7 0/8	235	3	10	62	54	0	0	1
12	Warah	924 2/8 0	146 3/8 0	778	1,266	7	0	35	4	1	3	3
13	Khyrah Guchul	52 2/8 0	12 2/8 0	39 1/2 8/8	175	6	1	.....				
14	Beronee Beerah	0 1/2 7/8	.....	0 1/2 7/8	5	1	11	.....				
15	Kumber Kundee	3,343 2/8 5/8	1,503 1/2 0/8	1,839 1/2 5/8	3,374	2	9	25	22	0	2	3
16	Chujrah	22 1/2 0/8	.....	22 1/2 0/8	188	1	9	44	38	1	0	0
17	Esaw.....	947 2/8 6/8	387 2/8 3/8	560 2/8 3/8	1,382	9	9	6	37	2	0	1
18	Datah Kohawur	50 2/8 4/8	12 1/2 4/8	37 1/2 0/8	218	7	2	0	31	1	2	2
19	Shahpoor.....	29 1/2 6/8	3 2/8 0	26 1/2 6/8	117	0	4	0	9	0	3	0
	Total.....	24,550 1/2 8/8	6,585 1/2 0/8	17,965 1/1 5/0	22,857	9	10	1,261	37	3	3	1

DIX G.

from, in the Chandookah Purguna, for the Spring Crop, 1845.

Sold from the Grain Receipts.	Realized from Grain Sales.	Balance of Grain Receipts.	Total Cash Receipts.
Kr. Ks. T. P. C.	Rs. a. p.	Kr. Ks. T. P. C.	Rs. a. p.
80 56 1 0 3	2,761 9 2	1 33 0 0 0	4,105 3 10
21 24 3 3 1	520 6 0	5 38 2 1 2	1,039 15 3
35 18 0 0 0	1,054 8 1	0 20 2 3 0	1,117 12 11
112 4 1 0 2	3,291 4 0	9 37 2 1 2	4,855 10 7
23 36 3 3 0	693 9 7	.....	8,022 14 5
37 38 2 2 2	1,231 13 9	.....	2,013 2 2
381 5 2 3 0	11,883 14 1	6 0 0 0 0	15,281 15 7
7 15 2 1 0	201 7 11	.....	384 8 8
0 58 2 0 1	30 1 2	.....	54 10 10
361 42 0 2 2	8,987 3 10	1 10 0 0 0	9,675 0 8
62 54 0 0 1	1,565 6 4	.....	1,800 10 2
34 34 1 3 3	776 5 11	0 30 0 0 0	2,042 14 11
.....	.....	.....	175 6 1
.....	.....	.....	5 1 11
25 22 0 2 3	787 2 10	.....	4,161 5 7
44 38 1 0 0	1,326 1 7	.....	1,514 3 4
6 37 2 0 1	204 2 7	.....	1,586 12 4
0 31 1 2 2	13 2 3	.....	231 9 5
0 9 0 3 0	4 13 5	.....	121 13 9
1,236 48 0 1 1	35,333 2 7	24 49 3 2 0	58,190 12 5

APPENDIX H.

Comparative Statement of Cultivation in Chandookah, for the undermentioned Seasons.

Crops.	1844.			1845.			1846.			1847.		
	Measured Crops, paying Cash and Kasagee Rent.	Estimated from Produce for Crops paying in Kind.	Total.	Measured Crops, paying Cash or Kasagee.	Estimated from Produce for Crops paying in Kind.	Total.	Measured Crops, paying Cash or Kasagee.	Estimated from Produce for Crops paying in Kind.	Total.	Measured Crops, paying Cash or Kasagee.	Estimated from Produce for Crops paying in Kind.	Total.
	Beegas.	Beegas.	Beegas.	Beegas.	Beegas.	Beegas.	Beegas.	Beegas.	Beegas.	Beegas.	Beegas.	Beegas.
Spring Crop...	..	..	..	24,550	6,300	30,850	20,245	3,261	23,506	18,832	8,000	26,832
Middle Crop*..	16,430	..	16,430	15,950	..	15,950	16,163	..	16,163	..	..	..
Autumn Crop..	67,133	23,440	90,573	†	†	91,814	74,265	36,410	110,675	..	..	..
Total....	..	..	07,003 1	..	..	138,614	‡	..	150,344	..	..	26,832

* All rents of the Middle Crop are in Cash, and therefore measured.

† Having mislaid the details of measurement and estimation, I can give only the Total.

‡ It will be seen that all three seasons are given only for 1845 and 1846.

APPENDIX I.

APPEN

Statement of Cash Receipts in the Chan

Months.	Land Revenue.			River Customs.			Town Duties.			Taxes.			Liquor and Drugs.		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
January	17,706	12	1	236	4	0	2,442	10	0	993	13	3	755	0	0
February.....	20,404	8	4	180	0	0	2,868	4	0	145	7	3	755	0	0
March.....	20,651	10	2	180	0	0	2,868	4	0	65	1	4	1,084	5	4
April	19,053	3	9	180	0	0	2,868	4	0	88	6	6	1,084	5	4
May.....	16,844	12	0	180	0	0	2,868	4	0	46	3	9	1,084	5	4
June.....	19,971	13	8	180	0	0	2,868	4	0	313	13	6	1,084	5	4
July.....	14,738	6	6	180	0	0	2,868	4	4	82	10	4	1,084	5	4
August	14,064	14	8	180	0	0	2,868	4	0	23	14	3	1,084	5	4
September	14,640	15	1	180	0	0	2,868	4	0	122	14	3	1,084	5	4
October	11,191	7	7	180	0	0	2,868	4	0	44	14	3	1,084	5	4
November.....	9,389	4	1	180	0	0	2,868	4	0	328	14	3	1,084	5	4
December.....	14,295	5	7	120	0	0	1,435	2	0	479	6	3	1,084	5	4
Total..	1,92,953	1	6	2,156	4	0	32,560	4	0	2,735	7	2	12,353	5	4

DIX I.

dookah Purguna, during the Year 1845.

Fisheries.			Gardens.			Fees and Fines.			Confiscated and Unclaimed.			Miscellaneous.			Total.		
Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
411	0	0	25	0	0	531	7	7	5	0	0	....			23,106	14	11
185	0	0	45	0	0	1,107	15	6	....			17	0	9	25,708	3	10
165	0	0	455	7	4	1,206	15	9	104	8	6	26	13	0	26,808	1	5
167	0	0	....			533	14	2	29	0	0	41	8	7	24,045	10	4
75	4	0	....			662	10	5	4	0	0	2	0	0	21,767	7	6
75	4	0	....			1,858	8	7	26	2	0	41	6	3	26,419	9	4
97	10	0	....			556	7	3	4	0	0	24	9	9	19,636	5	2
170	4	0	....			1,516	12	3	32	2	0	0	1	7	19,940	10	1
465	0	0	1,536	0	0	2,310	3	0	9	0	0	....			23,216	9	8
440	0	0	394	0	0	2,606	12	7	60	14	0	20	12	6	18,891	6	3
421	2	6	304	9	9	4,663	5	8	....			86	4	3	19,326	1	10
445	0	0	241	4	11	2,245	2	7	31	5	9	190	7	8	20,567	8	1
3,117	8	6	3,001	6	0	19,800	3	4	306	0	3	451	0	4	2,69,434	8	5

APPENDIX J.

Statement of Actual Grain Receipts in the Chandookah Purguna, during the Year 1845.

Months.	Kurwars.	Kasas.	Toyas.	Patoes.	Chuttacs.
January	490	51	2	..	1½
February	616	57	2	..	2
March	33	39	2	1	3
April	22	36	3	..	3
May	1	59	2	2	..
June	73	31	3	2	2
July	3	46	..	..	1
August	2	..	..	..	..
September	108	23	..	2	..
October	15	..	..	..	..
November	4	58	1	3	..
December	18	59	1	2	1
Total	1,392	43	3	3	1½

APPENDIX K.

Statement of actual Disbursements in the Chandookah Purguna, during the Year 1845.

Months.	Pay of Kardars & Establishments.			Other Expenses.			Total.		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
January	1,833	0	0	965	13	3	2,798	13	3
February	1,773	0	0	576	15	5	2,349	15	5
March	1,773	0	0	631	4	11	2,404	4	11
April	1,773	0	0	496	3	6	2,369	3	6
May	1,773	0	0	547	9	5	2,320	9	5
June	1,773	0	0	658	8	1	2,431	8	1
July	1,692	0	0	255	6	7	1,947	6	7
August	1,645	0	0	536	8	4	2,181	8	4
September	1,615	0	0	691	7	3	2,306	7	3
October	1,679	9	2	868	12	1	2,548	5	3
November	1,692	0	0	1,664	11	0	3,356	11	0
December	1,692	0	0	1,360	15	2	3,052	15	2
Total	20,713	9	2	9,254	3	0	29,967	12	2

APPENDIX L.

Statement of the Quantity of Seed per Beega; the Average Produce; the Number of Waterings; the Quantity of Manure per Beega; the Season of Sowing and Reaping; and the Number of Maunds per Kurwar of each kind of Grain.

Grains, &c.	Quantity of Seed per Beega.		Average Produce per Beega.		Number of Waterings.	Quantity of Manure per Beega.	Season of		Number of Maunds per Kurwar.
	Measure.	Weight.	Measure.	Weight.			Sowing.	Reaping.	
	Toyas.	Seers.	Kasas.	Mds.		Mds.			
Jowaree	1½	4½	20	9	5	16	June-July.	Nov.-Dec.	18
Bajree	¾	2	12	4	4	..	June-July.	Nov.-Dec.	20
Rice	6	14	20	4½	Mok.	8	July.	November.	14
Koonjud	½	1	3	¾	2	..	June-July.	Nov.-Dec.	15
Mandawah	½	1	10	2	6	4	June-July.	Nov.-Dec.	12
Wheat	10	21	20	7	6	16	November.	May.	21
Barley	10	18	15	4½	2	..	November.	May.	18
Mustard	½	1½	6	1½	Bosee.	..	October.	April.	16
Peas	2½	8	5	1½	do.	..	October.	April.	21
Gram	1½	5	7	2½	do.	..	November.	May.	20
Moong	1½	5¼	6	2	do.	..	August.	December.	21
Gashung	1	1¼	3	½	do.	..	November.	May.	10
Adas	1½	5¼	3	1	do.	..	October.	April.	21
Aryan	½	1	12	2½	18	12	Jan.-Feb.	April.	13
Cotton	..	4	..	3	15	12	February-March.	July-August.	..
Indigo	..	15	..	10	Incessant.	..	June-July.	Nov.-Dec.	..
Tobacco	..	½	..	10	6	32	February.	July.	..
Sugar	..	..	..	..	..	..	....	....	..

Vide Report, pp. 736 and 737 of this Selection.

APPENDIX M.

Comparative Statement of the Cultivation of the Principal Grains in the Chandookah Purguna, taken from the Returns of the Spring, Middle, and Autumn Crops, 1845 *and* 1846.

Grains, &c.	Spring Crop.		Autumn Crop.		Middle Crop.	
	1845.	1846.	1845.	1846.	1845.	1846.
	Beegas.	Beegas.	Beegas.	Beegas.	Beegas.	Beegas.
Peas	4,696	5,083	..	..	..	..
Barley	4,631	4,246	..	..	..	..
Wheat	4,200	4,250	..	..	..	..
Gram	3,000	2,460	..	..	..	..
Mustard	1,500	30	..	..	..	..
Goolmasfar ..	9	11	..	..	..	..
Jowaree	..	..	30,964	57,550	..	..
Rice	..	..	40,000	34,000	..	..
Bajree	..	..	6,757	11,892	..	..
Moong	..	..	2,500	3,470	..	..
Koonjud	..	..	1,427	2,250	..	..
Mandawah ..	..	..	124	250	..	..
Cotton	..	..	..	..	8,475	7,239
Sugar	..	..	..	..	223	106
Indigo	..	..	..	..	19	10

N. B.—The object of this table is to show what grains are most extensively cultivated, and not to compare the cultivation of the seasons 1845 and 1846.

APPENDIX N.

Table showing the Estimated Relative Value of the undermentioned Crops to the Cultivator.

Crops.	Rent of Land, Cost of Seed, Watering, and Labour per Beega.			Average Value of Produce per Beega.			Estimated Profit per Beega.		
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
Sugarcane	60	0	0	90	0	0	30	0	0
Tobacco	8	0	0	25	0	0	17	0	0
Cotton (Bosee)	4	0	0	12	0	0	8	0	0
Cotton (Sailabee)	5	0	0	10	0	0	5	0	0
Rice	4	8	0	18	0	0	13	8	0
Peas, &c.	3	8	0	10	0	0	6	8	0
Wheat	4	0	0	10	0	0	6	0	0
Jowaree	5	0	0	10	0	0	5	0	0
Bajree	4	0	0	7	0	0	3	0	0

APPENDIX C

Abstract Statement of Crime ascertained to have been Committed within the Number of Persons Apprehended, the Number Committed for by the Magistrate.

Years.	Months.	Number of Offences, and of Persons Apprehended for																			
		Murder.		Manslaughter.		Wounding, with intent to Kill.		Robbery, with Violence, or by a Person Armed.		Assault.		Rape.		Cattle-stealing.		Theft.		Forgery, and Personating Government Servants.	
		Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.	Cases.	Persons.
1845.	January	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	February	1	1	..	..	..	..	..	..	..	..	..	..	6	7	3	3	..	..
	March	..	..	..	..	..	..	2	2	..	..	..	..	3	3	..	..	1	1
	April	..	..	..	..	..	..	..	..	1	2	..	..	4	4	5	7	..	..
	May	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	June	1	1	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..
	July	1	1	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..
	August	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	September	..	..	..	..	1	1	1	2	..	..	..	..	5	6	5	9	..	..
	October	1	1	..	..	..	..	..	..	1	1	1	1	3	3	3	3	..	..
	November	..	..	..	..	..	..	..	..	..	..	..	..	2	2	8	10	..	..
	December	..	..	..	..	..	..	1	2	1	1	..	..	1	1	3	5	..	..
	Total, 1845	7	9	..	..	1	1	4	6	3	4	1	1	26	28	28	38	1	1
1846.	January	..	..	..	..	..	..	1	1	..	..	..	..	4	8	5	6	..	..
	February	..	..	..	..	..	..	1	1	..	..	..	..	1	1	8	12	..	..
	March	2	3	..	..	..	..	1	5	..	..	..	..	1	2	1	1	..	..
	April	..	..	..	..	..	..	..	..	..	..	..	..	1	1	3	3	..	..
	May	1	3	..	..	..	..	..	..	..	..	..	..	3	4	2	2	..	..
	June	..	..	..	..	..	..	..	..	1	1	..	..	1	1	4	7	..	..
	July	..	..	..	..	..	..	..	..	1	1	..	..	3	4	3	7	..	..
	August	..	..	..	..	..	..	..	..	..	..	..	..	2	2	1	1	..	..
	September	2	2	1	1	..	..	..	..	1	1	..	..	2	2	6	7	1	1
	October	..	..	..	..	..	..	..	..	..	..	..	..	1	2	4	4	..	..
	November	..	..	..	..	..	..	..	..	1	1	..	..	..	..	1	1	..	..
	December	1	1	..	..	..	..	..	..	1	1	..	..	2	4	2	3	..	..
	Total, 1846	6	9	1	1	..	..	3	7	5	5	..	..	21	31	40	54	1	1

the Chandoolkah Purguna, during the Years 1845 *and* 1846, *exhibiting Trial by Military Commission, and the Number Convicted or Released*

them.						How disposed of.						
Receiving Stolen Goods, or Harbouring Thieves.		Petty Miscellaneous Cases.		Total Number of Cases.	Total Number of Persons.	By Military Commission.		By the Magistrate.				Remarks.
Cases.	Persons.	Cases.	Persons.			Convicted.	Acquitted.	Convicted, subject to Confirmation.	Convicted Summarily.	Acquitted.	Released on Bail.	
..	..	3	3	6	8	..	..	..	3	..	..	5 escaped untried.
..	..	6	7	16	18	..	1	9	8	..	..	
1	2	1	1	8	9	..	..	8	1	..	..	
..	..	1	1	11	14	..	..	9	2	3	..	
..	..	..	..	..	..	..	..	..	..	..	..	
..	..	..	..	2	2	..	..	..	..	1	..	1 escaped untried.
..	..	..	..	3	3	..	..	2	..	..	..	1 ditto ditto.
..	..	..	..	..	..	..	..	..	..	..	..	
..	..	..	..	12	18	..	..	1	3	12	2	
..	..	1	2	10	11	..	..	3	6	1	..	1 sent to Magistrate of
..	..	..	..	10	12	..	..	3	7	2	..	Mehur.
..	..	1	1	7	10	1	..	4	3	2	..	
1	2	13	15	85	105	1	1	39	33	21	2	7 escaped, 1 transferred.
..	..	..	..	10	15	1	..	10	4	..	..	
..	..	1	1	11	15	..	1	3	6	5	..	
..	..	..	..	5	11	8	..	2	..	1	..	
..	..	..	..	4	4	..	..	1	3	..	..	
..	..	..	..	6	9	..	3	3	..	3	..	
..	..	..	..	6	9	..	..	1	6	2	..	
..	..	..	..	7	12	..	..	9	1	2	..	
..	..	..	..	3	3	..	..	2	1	..	..	
1	1	..	..	14	15	1	..	8	4	1	1	
..	..	1	1	6	7	..	..	..	7	..	..	
..	..	..	..	2	2	..	..	..	2	..	..	
..	..	..	..	6	9	1	..	3	2	3	..	
1	1	2	2	80	111	11	4	42	36	17	1	

APPENDIX P.

Return of Civil Suits decided by the Deputy Collector of Larkhana, during the Years 1845 *and* 1846, *exhibiting the Mode and Nature of Decision, and the Amount of Property under Litigation.*

Years.	Months.	No. of Suits.	Nature of Decision.			By what Court.		Amount of Property under Dispute.		
			For Plaintiff.	For Defendant.	In Shares.	Deputy Collector.	Arbitration.	Cash, Company's Rupees.	Land, Beegas.	Miscellaneous Property.
1845.	January	16	5	10	1	15	1	165 0 0	4,954	....
	February	8	3	3	2	8	..	216 0 0	129	1 house.
	March	3	2	1	..	3	..	220 0 0	1,000	1 house.
	April	3	..	2	1	2	1	34 0 0	10	....
	May	1	..	1	..	1	..	....	40	....
	June	10	5	3	2	10	..	71 0 0	954	....
	July	3	2	..	1	3	..	250 0 0	23	....
	August	3	2	1	..	2	1	1,250 0 0	90	....
	September	1	1	..	..	1	..	1 0 0	....	....
	October	1	..	1	..	1	..	....	10	....
	November	1	1	..	..	1	..	207 0 0	....	....
	December	3	2	1	..	3	..	140 13 0	....	....
	Total, 1845..	53	23	23	7	50	3	2,554 13 0	7,210	2 houses.
1846.	January	3	1	2	..	3	..	50 0 0	32	....
	February	1	1	..	..	1	..	....	....	1 house.
	March	2	..	2	..	2	..	....	500	1 house.
	April	2	1	1	..	2	..	....	268	....
	May	3	..	2	1	2	1	57 0 0	300	14 houses.
	June	9	2	3	4	9	..	248 0 0	3,031	....
	July	5	..	4	1	5	..	36 5 3	3,094	....
	August	3	1	2	..	3	..	64 8 0	....	....
	September	3	2	1	..	3	..	8 0 0	150	....
	October	1	..	1	..	1	..	....	236	....
	November	..	..	..	..	..	..	....	....	....
	December	9	4	2	3	9	..	270 0 0	122	10 houses.
	Total, 1846..	41	12	20	9	40	1	733 13 3	7,733	26 houses.

APPENDIX Q.

Return exhibiting the Number of Deaths from Cholera in the Purguna of Chandookah, during the Year 1846.

Numbers.	Districts.	Hindoos.		Musulmans.		Total.		Grand Total.	General Nature of District.
		Males.	Females.	Males.	Females.	Males.	Females.		
1	Myl Lahory	25	22	88	39	113	61	174	The town of Larkhana is included in this district. Most of the villages are on the banks of the canals, and there is much low land and swamp.
2	Bukapoor	11	6	80	46	91	52	143	A great deal of low land, with rice cultivation.
3	Nya Derah	..	...	...	...	...	..	.....	High land, no swamp.
4	Lal Dariya.....	4	6	20	13	24	19	43	Villages on the Narah, and low land between that and the Indus.
5	Anderoon Ghar ..	5	1	20	25	25	26	51	Low, between the Narah and Indus.
6	Anderoonee Beerah .	..	..	10	5	10	5	15	Open country, to north of the Ghar.
7	Khyrah Guchul ..	3	...	9	6	12	6	18	Ditto ditto, high land.
8	Ruttah Derah	3	...	...	1	3	1	4	As above: these cases were people taken ill when absent from their houses.
9	Kumber.....	27	10	94	45	121	55	176	Low land ; much rice cultivation.
10	Chujrah	...	1	9	2	9	2	12	On the Ghar.
11	Myl Morady	32	18	118	80	150	98	248	Much low and swampy land.
12	Myl Wagun	15	3	95	19	110	22	132	Ditto ditto ditto.
13	Warah	...	1	3	...	3	1	4	Mostly desert.
14	Maksoodah	...	...	...	...	...	...	.....	Bordering on the Desert ; high and open land.
15	Shahpoor	3	...	17	7	20	7	27	High land, north of the Ghar.
16	Nalah Data	3	1	11	4	14	5	19	Ditto ditto ditto.
	Total..	131	69	574	292	705	361	1,066	

APPENDIX R.

Table exhibiting the Number of Villages and Shops, of Ploughs and Artificers, and Trades, in the Chandookah Purguna, for the Year 1846.

Numbers.	Tuppas.	No. of Villages.	Shops.				No. of Ploughs.	Artificers and Trades.							
			Shroffs.	Bunias.	Liquor.	Other kinds.		Carpenters.	Blacksmiths.	Coblers.	Weavers.	Tanners.	Bricklayers.	Brickmakers.	Other kinds.
1	Bukapoor	35	14	290	2	2	571	15	13	35	113	1	7	15	224
2	Myl Lahory	18	..	60	..	3	296	6	1	6	27	..	..	..	13
3	Nya Derah	30	..	25	..	50	1052	12	4	11	48	9	..	2	45
4	Khyrah Guchul	36	..	113	1	6	448	11	4	13	76	..	..	..	42
5	Anderoon Ghar	11	..	35	..	22	399	4	2	3	13	..	..	..	10
6	Nalah Datah	11	..	36	..	46	100	6	2	2	39	..	..	..	30
7	Maksoodah	9	..	16	..	23	143	4	1	3	16	1	..	..	16
8	Myl Morady	35	..	251	1	4	831	27	6	27	134	..	..	..	131
9	Esaw	16	..	34	1	4	269	7	1	4	29	..	..	..	22
10	Warah	15	..	38	1	2	216	6	2	9	26	..	..	..	24
11	Kumber	11	3	163	1	9	442	7	4	8	66	..	..	..	45
12	Ruttah Derah	31	..	19	1	52	464	7	2	7	45	..	..	..	49
13	Shahpoor	34	..	26	1	14	143	3	1	5	22	..	..	..	14
14	Chujrah	14	..	77	..	3	356	7	4	8	20	..	..	..	24
15	Wagun	10	1	48	1	46	435	7	2	10	36	..	..	..	34
16	Lal Dariya	38	..	67	1	96	860	12	2	18	40	..	..	..	92
17	Futtehpoor	24	..	51	..	14	582	13	3	18	12	..	..	..	53
18	Anderoonee Beerah	14	..	29	..	7	126	6	1	3	19	..	..	..	13
	Total	392	18	1378	11	403	7733	160	55	190	781	11	7	17	881

ROUTES FROM KURACHEE

TO

BHOOJ, TATTA, JERRUK, SUKKUR, KOTREE, KAHUN, SONMEEANEE, FEROZEPOOR, RAMNUGGUR, &c.

BY

LIEUTENANT COLONEL J. HOLLAND,

26TH REGIMENT NATIVE INFANTRY,

QUARTERMASTER GENERAL OF THE BOMBAY ARMY.

NOTE.

The following Routes, having been included in Political Selection No. XV., containing Miscellaneous Information connected with the Province of Kutch, are omitted from this Selection :—

From Bhooj to Hyderabad, *viâ* Lukput.
From Bhooj to Hyderabad, *viâ* Vingur and Raoma Bazar.
From Bhooj to Hyderabad, *viâ* Balliaree and Wunga Bazar.
From Bhooj to Sukkur, *viâ* Vingur and Buddeena.
From Bhooj to Sukkur, *viâ* Balliaree and Wunga Bazar.
From Bhooj to Tatta, *viâ* Lukput.
From Kurachee to Bhooj, *viâ* Gharra, Ooplana, and Kotasir.

ROUTE No. I.

FROM DEESA TO HYDERABAD.

GENERAL DIRECTION, WNW.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Marwar. Sachore.	Political Agent at Jodhpoor.	Camp Deesa to Ninawa.	34	3	34	3				
		Sachore	10	4	10	4	Level and sandy, but good road.	Abundant, from one large well, but brackish.	Moderate....	Sachore is the principal town of the district, but is a small place, and half deserted, with less than 200 houses. Country jungly and sandy, and gently undulating, with cultivation near villages.
		Eesole, Gombee	14	0	14	0		Abundant, from wells....	Scanty.....	2 small villages near a branch of the Loonee river, in a finely cultivated country. First part of the road jungly, but gradually becomes open, with numerous villages, and much cultivation.
		Tampee	11	0	11	0		Abundant and good, from wells, and pits in the bed of the Loonee river, but becomes brackish in hot weather.	Abundant; 20 shops.	200 houses, and a detachment from Jodhpoor, on the Loonee river; much wheat cultivation. Cross a branch of the Loonee, from Eesole, and the main branch at 4*m.*, to Hoteegaum, 150 houses. The river continues on the left hand to Tampee.
The Thull.		Panoria	12	2	12	2	Heavy sandy road, over and among high sandhills.	2 wells, 1 pukka or built, 1 kucha; water plentiful, but deep and brackish.	None	20 huts; encamp on the left, near the wells. Pass Bheemgur, deserted, at 4*m.* 7*f.*, 2 kucha wells, 35 feet deep, and Wydee at 8*m.* 4½*f.*, 2 huts, with water close to the surface, and sweet. At 7*m.* 2*f.* cross an inlet of Runn, or ground retaining rainwater. The country is a succession of sandhills, covered with coarse grass and low jungle.
		Carried over..	..	..	82	1				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	82	1				
Marwar. The Thull.	Political Agent at Jodhpoor.	Bowar	13	5	13	5	Heavy sandy road, over and among high sandhills.	1 pukka well, 120 feet deep; water abundant, but brackish.	None	30 huts; encamp W. of the well. Country as before. At 5 *m.* pass Paglia, 7 huts, 1 kucha well, 90 feet deep, with brackish water.
		Janpalia	11	1	11	1		1 well, 150 feet deep; water plentiful, but brackish.	None	10 huts. Country a little open on the right of the village, but as before along the road.
Sind. The Thull.	Deputy Collector at Meerpoor.	Urbelar	12	0	12	0	Tolerable road	A well of very good water, said to be inexhaustible.	None	A few huts on a sandhill.
		Charnoor.....	12	0	12	0	Road tolerably hard and good.	A very deep well of excellent water.	None	No village. Country rather open, and a little jungle. The village of Kysir 2 miles to right, with wells.
		Kooara	18	0	18	0	Road sandy, and undulating, with much jungle, and some cultivation.	4 wells of very salt water.	None	A few huts; half-way a well, said to be of good water. Country covered with grass.
		Chachra	10	0	10	0		Good and plentiful, from a tank, which lasts till December, and numerous wells, with abundance of water for a regt. of cavalry on 20th February 1844.	Ghee, bajree, and forage, abundant.	About 150 huts; a large village for the desert, on three sandhills; encamping ground north, on good high ground.
		Banda Talao	13	4	13	4	Heavy road, but not impassable for guns. Pass 6 high sandhills, and several smaller.	A tank, which lasts till November.	None	No village. At 7*m.* pass Nowapoora, a respectable village of 40 huts, with a good well, and several wands at a distance among the sandhills.
		Mundora	10	1	10	1	Very heavy and difficult road. Cross 19 sandhills, some of great height, hardly practicable for guns.	A tank, which soon dries, and 2 brackish wells, with plenty of water.	None; but forage abundant.	A few huts in 1844, deserted in 1840, and fine encamping ground; pass Mittree, 1 well, with little water, and Katia, 3 hamlets, with one good well; much milk-bush jungle.
		Niniar	5	7	5	7	Very heavy road, worse than last stage; cross 14 sandhills.	A tank of good water, till Dec., & 2 wells, 120 feet deep, of brackish water.	None	No village; encamp near the wells. Country as before, but more cultivation in the hollows.
		Oomerkote	12	6	12	6	First part of the road very heavy, over sandhills;	Abundant and good, from a tank lasting all the	Abundant, and forage pro-	A brick fort, 318 by 248 *yds.*, and 160 *yds.* to the SW. of a large straggling village

Sind. Hyderabad. Deputy Collector at Meerpoor.

					the last harder, and more gravelly.	year, & numerous wells.	curable.	of mud houses, on a branch of the Nara river, where the Thull or Sandy Desert ceases abruptly, Omerkote being immediately under the last ridge. The country covered with jungle of milkbush, babool, and other shrubs. An extensive plain to the W.
Saheb-ka-Thull	15	5½	15	5½	Level road; soil sandy, with much jungle.	Four kucha wells, in the bed of the Nara.	None; forage uncertain.	A few huts on the Nara river, with much jungle on the banks, and in the bed, and the signs of cultivation in former years, when the Nara was regularly filled. The sandhills of the Thull are about 3 miles to the right; about 4 miles to the north is the large village of Syud-ka-Gote, with a bazar.
Gooroor	13	4	13	4		2 wells in a dry tank, one of them pukka, close to a mosque, 200 *yds.* S.	None; forage procurable.	A few huts; encamping ground in thin jungle, to the SE. of the tank, which is filled only after an inundation of the Nara; signs of former cultivation abound here. Much jungle all along the road. At 4 *m.* 2*f.* pass a small tank; at 10*m.* 6*f.* cross the Teetore Canal.
Joorbee	16	3½	16	3½	Level road; first part over an extensive, uncultivated plain.	Good and plentiful, from 3 wells.	Moderate; a small bazar, grass scarce, but kurbee procurable.	80 houses, and an old fort 100 *yds.* to W. At 3*m.* pass Cheylee Thull, deserted; remains of 3 wells in a dry tank. At 8*m.* 1½*f.* Atna. At 14*m.* 2½*f.* Sind Dhora, a few huts, with one well, on the Kunda or Saloora Canal, in a cultivated plain.
Meerpoor.....	7	1½	7	1½	Very good, over a sandy plain, more or less cultivated, and much cut up by canals.	Abundant and good, from 9 wells.	Abundant; 80 shops, grass scanty, kurbee procurable.	A small town of 200 houses, and a fort, with a fine grove of mango trees under the walls. It is in good repair, and has quarters for 200 men. Country highly cultivated.
Alliyar-ka-Tanda	19	0½	19	0½		Abundant and good, from 20 wells.	Abundant; 60 shops; grass scarce, but kurbee abundant.	A town of 1,000 houses, with good encamping ground to the NE. At 3*m.* 0½*f.* and 4*m.* 7*f.* pass ruined villages, with 2 kucha wells. At 11*m.* 7*f.* cross the Kummara or Dhora *Wah* (canal); banks rugged. At 14*m.* 2*f.* pass Bamboora or Kalaroo, 50 huts, and 2 wells of good water. At 15*m.* 2*f.* cross the Sangra or Gulloo *Wah*. Altogether 8 canals in this stage.
Carried over..	..	..	273	0				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought forward..	..	..	273	0				
Sind. Hyderabad.	Deputy Collector at Meerpoor.	Jam Hala-ka-Tanda ..	13	4	13	4	Good road, over a level country, and cultivated plain, but much broken by canals.	Abundant, from 7 wells within the village, and 8 outside,	Abundant; 70 shops.	A large place, of 300 houses, surrounded by gardens and groves, and a broad and deep canal running to the W. Country an extensive plain. Several small hamlets skirt the route, surrounded by trees and cultivation, which latter extends along the banks of the canals, which are all filled during the inundation. At 8*m.* 6*f.* cross the Nusseer *Wah*, a broad and deep canal from the Indus. In all, 10 canals in this stage.
		Hyderabad Fort	10	4	10	4		.....	.....	At 4*m.* 1*f.* pass Dubba, 30 huts, and 4 shops, where the action of the 24th March 1843 took place. At 5*m.* 2½*f.* Jeytia, 10 huts, 2 shops. At 7*m.* 7½*f.* Bhatinga, 30 huts. At 8*m.* 3½*f.* Alum Khan-ka-Shuhr, 30 huts. At 8*m.* 7½*f.* Mahomed Khan-ka-Tanda. At 9*m.* 7*f.* cross the Fullailee river, generally dry in October, with the exception of pools, 100 *yds.* broad, banks steep, of stiff clay, from 26 to 35 feet deep. A pontoon and flying bridge here, during the inundation.
		Total ..	..	..	297	0				

NOTE.—This route across the Thull was followed by the 3rd Regiment of Light Cavalry, between the 7th February and 8th March 1844, and was found practicable throughout for carts, one having accompanied the regiment. The only sandhills presenting any difficulty were those between Mundora and Omerkote, a distance of 18 or 20 miles. Grass and water were found abundant, and with some attention to drawing wells and preparing troughs, &c., no scarcity need be apprehended, except after great drought.

ROUTE No. II.

DEESA TO HYDERABAD, VIA VEERAWOW AND ISLAMKOTE.

Division or Description of Territory	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
The Thull.	Political Agent at Bhooj.	Camp near Deesa to Veerawow	108	7	108	7				
		Summa Mahomed Khan	11	5	11	5	Good in general, though heavy in some parts, over low sandhills, covered with low jungle. Pass two small inlets of Runn.	One well, near the village, and 5 more to SW., at the foot of a hill; water good, and near the surface.	None	23 houses; encamping ground extensive, at the foot of a sandhill near the wells. At 3*m.* pass Dabra, 8 huts, and 1 well of salt water. At 6*m.* cross an inlet of Runn, and at 9*m.* 3*f.* another, each about 10 furlongs broad, hard and dry in September.
		Borlee	12	4	12	4	The first half of this stage is a good road, among sandhills. The last half very heavy, crossing several of them.	One well, 90 feet deep; water good and plentiful for a squadron of cavalry.	1 shop; forage scanty, and coarse.	11 huts; encamp by the well. At 1*m.* 3*f.* pass Kurmoree, 5 huts, and several wells, 18 feet deep. At 5*m.* Lakeetoba, 12 huts, and 1 well, 55 feet deep; water good. At 7*m.* 7*f.* Saya, 6 huts, one well of water, salt, 66 feet deep. Country composed of high sandhills, covered with grass and low jungle, and increasing in height and number towards the latter half of the stage.
		Islamkote	17	6	17	6	Road very heavy, over numerous sandhills.	3 large brick-built wells, 144 feet deep; water plentiful for a wing of cavalry, but brackish.	4 shops, but procurable on two days' notice; forage very coarse.	100 houses, and a small but strong fort; encamp near the wells, in a good plain. At 6*m.* 0½*f.* pass Kairia, 27 houses, and 1 large brick-built well, 112 feet deep, 3 feet diameter, brackish water, and good encamping ground. Country as before.
		Ukairajee-ka-Gote	9	0½	9	0½	First 10*m.* bad, over sandhills, but easier than before; last mile and a half good and open.	1 pukka well, east of village,	2 shops	37 houses on the right of the road; encamping ground E., under some trees near the well. Pass Kumra-ka-Thull, 8 huts, 1 kucha well.
		Carried over..	..	..	159	6½				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	159	6½				
Sind.	Deputy Collector at Meerpoor.	Cheylar	18	2	18	2	Road very fatiguing, over numerous sandhills, covered with low jungle of babool and other bushes.	From a tank, and 8 wells, 4 furlongs to the right of the fort; water plentiful, and tolerable.	Procurable; 16 shops.	90 houses, with a small fort, lately destroyed by Government; halting ground near it. At 5*m.* 4½*f.* pass Veerasir, 12 huts, 1 kucha well, NW., 130 feet deep, water brackish. At 9*m.* 3*f.* Meyat, or Mehur, 10 huts, and a kucha well, 150 feet deep, water brackish. Country as before.
		Junjeer	8	3	8	3	Road and country as before.	From 2 pukka wells, one good, the other brackish, west of village.	.....	33 houses; encamping ground near the wells, under Babool trees. Country as before; another village of the same name a mile to the north.
		Sukerdeen, or Nubbeesir	11	6	11	6	Road heavy and bad, over many sandhills.	3 kucha wells, on the NW., 75 feet deep, water plentiful, but becomes brackish in hot weather; 1 tank and 1 well, on right, of good water, near a garden.	20 shops; also forage plentiful.	A large village of 107 houses; encamping ground near a vegetable garden, and well. The sandhills of the Thull terminate here.
		Munjakur-ka-Thull ..	13	4	13	4	Good road, through hard, level country, with thick jungle.	1 good well, and a brackish one 800 *yds.* SW.	None, but grass.	A mere halting-place; some huts within a mile, and several hamlets within a circuit of 2 or 3*m.* At 7*m.* 3½*f.* pass Koondvee, 40 houses, 5 shops, and abundant water.
		JanMahomed-ka-Shuhr	18	4	18	4.	Good road, over a hard, open, desert plain.	6 wells, and Poorun river.	Abundant; 20 shops.	130 houses, on the west of the Poorun river. Country open and level, with thin babool jungle; encamp on the western bank of the river.
	Collector at Hyderabad.	Diggree	9	1½	9	1½	Good road, through low jungle, but cut up by canals.	9 wells	Ditto, from 40 shops.	175 houses, and a Government bungalow. At 6*m.* pass Russeed-ka-Gote, 15 huts, and 1 well; country level, with thin jungle, and much cultivation near villages.
		Goolam Ali-ka-Tanda..	14	5½	14	5½		7 wells, and Ran Canal; 1 well in the fort.	Plentiful; 40 shops, and forage abundant.	250 houses, a small fort, and a Government bungalow. At 4*m.* pass Kazee-ka-Gote, 30 houses, 1 shop, on the Nusseer *Wah*, or canal.
		Carried over..	..	..	254	0½				

Sind.	Collector at Hyderabad.	Aga Manoo	11	7	11	7	Good road, over a hard, level plain.	Abundant, from a large well, and canal.	Scanty, but procurable on notice.	18 houses; encamp on the bank of the canal. Pass several small hamlets near the road. Country as before.
		Gotana	16	1	16	1	Tolerable road, with some low jungle, and many canals.	3 wells	Scanty; 3 shops.	50 houses. At 3*m.* 4*f.* pass Sekundur Lugaree-ka-Gote, 10 huts. At 7*m.* 7*f.* Sheik Beerke, 50 houses, 4 shops. At 12*m.* 5*f.* Moola, 80 houses, 8 shops. At 14*m.* 2*f.* Kheir Mahomed Tora, 40 houses, 5 shops. At 15*m.* Jind Khan Juwur-ka-Gote, 30 houses. Country as before.
		Hyderabad Fort	12	6	12	6		Abundant	Abundant ..	At 2*m.* 7½*f.* pass Pubbun-ka-Gote, 10 houses. At 4*m.* 6*f.* Janoor-ka-Gote, 100 houses, 14 shops. At 6*m.* 1½*f.* Moree, 60 houses, 10 shops. At 6*m.* 7*f.* Muggrai-ka-Shuhr, 50 houses, 10 shops. At 9*m.* 7½*f.* Hyder-ka-Tanda, 200 houses, 15 shops. At 12*m.* 1*f.* Mahomed Khan-ka-Tanda, 60 houses, 6 shops. At 12*m.* 6*f.* cross the Fullailee river, by a flying bridge from April to September.
		Total..	..	..	294	6½				

ROUTE No. III.

FROM DEESA TO HYDERABAD, BY PARKUR, THE SOUTHERN BORDER OF THE THULL, AND WUNGA BAZAR.

SEASON, OCTOBER AND NOVEMBER.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
The Thull, or Desert.	Political Agent at Bhooj.	Camp near Deesa to Ramsirra Tank, near Burrana	..	..	90	3				
		Carried over..	..	..	90	3				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	90	3				
The Thull, or Desert.	Political Agent at Bhooj.	Nuggur (Parkur)	16	6½	16	6½	Good, hard, level road..	Water abundant and good, from 4 pukka wells, and 6 pits in a nulla.	Moderate; 20 shops.	A village of 250 huts, at the mouth of a ravine, in the Kalinjur hills. At 1*m.* pass Burrana, a small village, with a tank, and wells of good water, which cannot be depended upon; forage plentiful. At 9*m.* 4½*f.* Rampoor, a small village, with little water or forage.
		Giramnee.....	13	0	13	0	Heavy sandy road, winding over and among sandhills, difficult, but not impracticable, for wheeled carriages.	Wells; water in moderation.	Forage procurable.	Deserted; generally a few huts.
		Juhangroo	10	0	10	0		Many wells of good water, only requiring clearing to be abundant.	Ditto	A wand or temporary village, of a few herdsmen, liable to be deserted when the wells fail.
		Soneat	8	0	8	0		2 wells; water sufficient for a troop of horse.	Forage abundant.	A few huts, as before; there is a direct road from Giramnee to Soneat, avoiding Juhangroo, distance about 16*m.* 4*f.*
		Mohunba.....	12	2	12	2		1 pukka stone well, affording an abundant supply of water.	Ditto	A few huts, as before.
		Wundur	11	6	11	6		Several wells, and water sufficient for a troop of horse.	Forage abundant, and good.	A few huts. At 4*m.* 4*f.* pass Goralush, a large village of herdsmen's huts; abundance of water from 18 wells, and forage plentiful and good.
		Koral	12	4	12	4		Abundant, from 2 wells, close to village, and 13 others at 6*f.* to S.	Forage abundant.	20 huts. Pass Mohosa at 3*m.*, a few huts; abundance of brackish water, from several wells, and forage good and plentiful. At 7*m.* 6*f.* Chanoo, 12 huts; water plentiful, from wells, and good and abundant forage. At 8*m.* 4*f.* Borlee, a small village, with one well, water slightly brackish, and not to be depended upon; forage scanty and coarse; encamping ground S. of village. At 11*m.* 6*f.* Butwas, 2 or 3 huts.
		Vellar	9	4	9	4		Good and plentiful, from several wells.	Forage good, & abundant.	A large village.

Sind.	Collector at Hyderabad.	Deepla.....	8	6	8	6		Abundant, from a deep tank, and wells in it; the tank is fed by springs, and never fails.	Moderate, but forage plentiful.	A large village, and mud fort in ruins; encamping ground confined and soft, NW., on bank of a dry tank. Country composed of sandhills, covered with thick low jungle, and dry grass.
		To Mahomed-Khan-ka Tanda	86	2	86	2				
		To Hyderabad Fort ..	22	0½	22	0½				
		Total..	..	..	301	2				

NOTE.—The route between Parkur and Wunga Bazar has been traversed by a troop of horse artillery, and four squadrons of light cavalry, since 1840, and, as regards water, is the best of all the lines between Deesa and Hyderabad and Sukkur. It is, however, heavy and circuitous, and the stages between Deepla and Wunga Bazar are very severe for guns, although they were traversed by three carts, with two bullocks each, belonging to Lieutenant (now Major) Jacob.

ROUTE No. IV.

FROM DEESA TO SUKKUR, VIA JEYSULMEER.

GENERAL DIRECTION, NW.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	REMARKS.
Jeysulmeer.	Govr. Genl.'s Agent at Ajmeer.	Camp near Deesa to Jeysulmeer.....	..	..	215	7				
		Chuttrail.....	14	1¼	14	1¼	Sandy & stony road, over low sandstone ridges.	5 good wells, in bed of a river.	None; coarse grass procurable.	March from Kishun Ghaut, the best encamping ground near Jeysulmeer, to the NE. of the town, which pass at 2*m.*; and at 4*m.* 6¼*f.* pass Omur-Sagur, the country residence of the Rawul, a village with 20 shops, and a fine tank, and wells. At 8*m.* 2*f.* Jondra, or Londra, 3 furlongs off the road, 80 houses, 3 shops, and 8 or 10 good wells; bad encamping ground, among low sandhills. There is no village at Chuttrail.
		Carried over..	..	..	230	0¼				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	230	0¼				
Jeysulmeer.	Govr. Genl.'s Agent at Ajmeer.	Koochree.....	13	4	13	4	Good road, through an open country.	Abundant and good, from 13 built, or pukka wells, and a tank; wells 66 feet deep.	None; coarse grass procurable.	At 3*m.* 4*f.* pass a tank; no village at Koochree, but excellent encamping ground, near the wells. Villages within two or three miles, whence supplies are procurable; large flocks of fine sheep about here.
		Kooeehara, or Koara..	9	0	9	0	Sandy road	2 wells, very deep, of rather brackish water. 1 mile to the E., among some trees, are a number of small wells.	3 shops	A small fort and village, with scanty supplies. Enough water for a wing of cavalry, and more wells might easily be sunk; grass procurable from the sandhills round the village, and on the road from Koochree.
Upper Sind.	Political Agent at Khyrpoor.	Gotaroo, or Sirdar Gurh	26	4	26	4	First 15 miles road good, over a plain; the rest over sandhills from 15 to 30 feet high, and rather heavy.	Abundant, from 5 pukka wells, 150 feet deep, 2 within the fort, and 3 outside, close to the walls. The wells are drawn by camels.	Scanty, from 2 shops; forage abundant, though coarse.	A small village, and brick fort, with round towers, 200 *yds.* square, and a gate in the south face, in good order, and mounting 2 guns, with a garrison of 100 men from Khyrpoor; bad encamping ground, in heavy sand. At 4*m.* 7*f.* pass 3 wells, called Banda, some distance to the right of the road, 2 of them very salt; about a mile further are several small but good wells, and at another mile some muddy ponds, called Moordalee; neither these ponds nor wells are to be depended on. At 10*m.* from Gotaroo cross the boundary between Jeysulmeer and the Khyrpoor territory.
		Meetrao	29	2	29	2	Road very heavy, over a succession of sandhills, from 15 to 30 feet high, and a severe march for men on foot, but easy for camels and horses.	6 kucha wells, water abundant and good.	1 shop; very scanty, but grass obtainable in the sandhills.	Meetrao is a small mud fort, on a steep sandhill. If the wells were protected, and forage laid in here, there would be no difficulty in the route. Half-way from Gotaroo are 3 small ponds, called Sobara, and there are two others between it and Meetrao, but they dry up before the hot weather.

Oodur	14	2	14	2	Heavy sandy road, with low jungle, varied by occasional stony ground.	3 small wells of tolerable water, requiring to be drawn and cleared beforehand.	None; nor is forage to be had here.	A small village, occasionally deserted, with the ruin of a fort, said to have been swept away by the inundation of the Nara river; good encamping ground between the wells and fort, under trees, to the left; thick strata of salt in the vicinity. At 7*m.* 1¾*f.* pass Kurwo, or Karora, a small hamlet, with 3 small wells of indifferent water.
Wass, or Wassa	19	2½	19	2½		Wells, or pits, in a nulla, WNW., and some pools 1½*m.* ENE. of Wass, which, after the inundation, have abundance of excellent water.	None; green wheat can be purchased in season.	A small hamlet, on a sandhill; water can be procured by digging. Troops should ascertain, before halting here, whether there is water in wells dug in a nulla among trees WNW. of the village, and below it. At 5*m.* 5½*f.* pass Mutter Kakooee, 3 or 4 huts, and a well of tolerable water, and abundance of it, if cleared out. At 9*m.* 1¾*f.* Mota; wells of good water. At 16*m.* 4¾*f.* Bagka; a well of tolerable water, on the left hand, but no village.
Sungrar (Nowa), or Sangrur	6	6¼	6	6¼	Road good, through cultivation and low jungle, but impassable during the height of the inundation, when it must be under water.	Abundant, from 3 wells and a tank, and a large lake or dund, 1*m.* to the north.	Abundant; also forage.	A large place, between two ranges of sandhills; good encamping ground E. of the town, on pasture land, surrounded by tamarisk jungle, close to the water. The country passed in this stage is low, swampy land, covered with thick, marshy vegetation, with occasional sandhills.
Roree	15	5	15	5	Road much confined by jungle, and cut up by watercourses. Between Beeree and Kotree it runs along the edges of jowaree fields, & crosses 3 canals and several watercourses; impassable during the inundation.	Abundant, from wells, and river Indus.	Abundant....	A large town, on the left bank of the Indus. At 1*m.* pass old Sungrar, deserted. At 3*m.* cross the Nara river, wide, and with 1½ foot water, hard bottom, and good approaches, but steep. At 4*m.* Foolpotra, small village, with water and forage abundant. At 4*m.* 3*f.* cross another branch of the Nara, with 3 feet water. At 5*m.* Beeree, a large village, with water and forage. At 8*m.* 1¼*f.* Kotree, a large place, with water and forage abundant. At 10*m.* 4¾*f.* Paree, water and forage abundant. At 12*m.* 2*f.* Ukkra and Maree, two small villages. There is another road from Sungrar to Roree, by Turree and Arore, about the same distance as the above.
Carried over..	..	..	364	2				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Upper Sind.	Collector at Sukkur.	Brought over..	..	..	364	2				
		Sukkur	1	6	1	6	Cross the river Indus, by boat.	Abundant.....	Abundant.	
		Total....	..	..	366	0				

NOTE.—This route was traversed by a wing of the 1st Lancers between 30th October and 8th December 1841, and has been surveyed and reported on by several officers. No difficulty of any consequence was experienced on the march, and it was the opinion of the officer commanding the cavalry, that with some attention to repairing and clearing the wells at Wass, Mata, Mustee, Oodur, Meetrao, Gotaroo, and Koochree, and by carrying forage on some of the stages, it would be found a more eligible route for artillery than any of the other lines between Deesa and Sukkur. Bullocks are very inefficient carriage on this line, and no troops of any arm should attempt the route later than the 1st March, as the heat and want of water might be fatal. Should the country between Wass and Roree be flooded during the inundation,—an event by no means of annual occurrence,—a circuitous route can be taken from Oodur, by Khyrpoor, to Roree, avoiding some of the lowest ground ; but in such case it would not be safe to traverse this line before the beginning of October.

ROUTE No. V.

FROM DEESA TO SUKKUR, VIA VEERAWOW AND OMERKOTE.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Political Agent at Bhooj.	Camp near Deesa to Veerawow	..	..	108	7	Heavy road, winding over and round sandhills.	Scanty and brackish, from 7 kucha wells, water from 12 to 18 feet deep, below the village.	None	A few huts, on a sandhill. The sandhills commence immediately on leaving Veerawow, but many are avoided by following the valleys, which are often hard, with coarse grass, prickly shrubs, and occasionally a little cultivation.
		Duddora	8	6	8	6				

Sind.

The Thull, or Sandy Desert.

Political Agent, Bhooj.

Collector at Hyderabad.

Goriar	12	0	12	0	Road heavy, through sandhills, but quite practicable for light guns, though a mere footpath, impossible to follow without a guide; the ground very rotten, being undermined by rats.	One well of indifferent water, 168 feet deep, and about 3½ feet in diameter, with a mud trough; enough for a regiment of infantry.	None; but forage procurable.	A few huts. At 5*m.* 2*f.* pass Punalia, no village, but a very brackish well, 108 feet deep. The country is a succession of sandhills, covered with low brushwood.
Tariana	8	1	8	1	As before, but not quite so heavy.	One well, water better and more plentiful, 242 feet deep.	None; but forage abundant.	6 huts; a good plain for encamping, to the east. A small tank 3*m.* to the east.
Rajoora	10	6	10	6	As before, but more confined by jungle.	One well, 240 feet deep, and a small tank, with water on the 21st September 1840.	Ditto	20 huts. The country as before, but jungle and coarse grass more abundant; more cultivation of bajree in the valleys.
Cheyha	13	1	13	1	As before; two very heavy sandhills crossed.	Water from a small tank, nearly dry in the end of September.	None	10 huts. Country as before. The shepherds at this place resort to Koodee when the tank dries up.
Chachra	7	3	7	3	Sandhills to be crossed, higher and more numerous than before.	Good and plentiful, from a tank which lasts till December, and 10 wells near it, close to two neem trees, and 6 more below the huts.	40 or 50 shops, with ghee, bajree, &c.; grass abundant.	About 150 huts, in three hamlets; encamp north, on good and high ground. As far as Cheyha the route has generally followed the line of the sandhills, but from thence to Chachra it runs across them.
Banda Talao	13	4	13	4	Heavy road, but not impassable for guns; cross 6 high sandhills, and several smaller.	A tank, which lasts till November.	None	No village. At 7*m.* pass Nowapoora, a good-looking village, of 40 huts, and a good well, and several wands at a distance, among the sandhills. The country improves in appearance on this stage.
Mundora	10	1	10	1	Very heavy and difficult road; cross 19 sandhills, some of great height, hardly practicable for guns.	A tank, which soon dries, and 2 brackish wells.	None; but forage abundant.	A few huts; good encamping ground; pass Mittree and Katia, better villages than to the east of Chachra. Milkbush appears for the first time since leaving Veerawow.
Niniar	5	7	5	7	Very heavy road; cross 14 sandhills, worse than the last stage.	A tank of good water, lasts till December, and a well of brackish water, 120 feet deep, & another 4*f.* to the S.	None	No village. Country as before, but fine crops of bajree; encamp in low ground, near the well.
Omerkote	12	6	12	6	First part of the road heavy, over sandhills; the remainder hard, and soil more gravelly.	Abundant, from a tank lasting all the year, and wells.	Abundant; forage scarce, except in the rains.	A brick fort, to the west of a large straggling village of mud houses. Country covered with milkbush, babool, and other shrubs; the sandhills of the Thull cease at Omerkote, which is under the last ridge on the bank of the Nara river. An extensive plain to the west.
Carried over..	..	..	211	2				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	211	2				
Sind.	Collector at Hyderabad.	Ghoolam Nubbee	19	5	19	5	Road level and sandy, and covered with jungle, skirting the Thull; from Saheb-ka-Thull it is heavier.	Abundant, from wells in the bed of the Nara river, and a dund or pool.	Scanty	A small village; at 13*m.* 4*f.* pass Saheb-ka-Thull, a few huts on the Nara river, with wells in the bed. The sandhills of the Thull are about 2*m.* to the right, along this stage. Country level, soil sandy, with jungle of tamarisk and kureel.
		Kaipra.....	24	0	24	0	Ditto, through dense jungle, but good road.	Good and plentiful, from wells in the bed of the Nara river, but requiring to be cleared.	None	A small village; encamp in the bed of the Nara river; pass Bit-ka-Bit and Diliar in the stage, the former a small village; at Diliar good water. The Nara divides into several branches at Kaipra, each from 400 to 500 *yds.* broad.
		Surnawaree	12	2	12	2	First part in the bed of the Nara river, the rest a good footpath.	Good, from wells	Procurable...	A small village.
		Syud Bukr, or Bakaree.	12	7	12	7	Good road, except at one nulla near Meeta Khan-ka-Dhera; road from Omerkote quite practicable for guns.	Good, from wells in the bed of the Nara river, which require clearing, and are soon drawn, but numerous.	None; grass and kurbee abundant.	A small village; encamp in the bed of the Nara river. To this point the bed of the Nara has been hard, and covered with grass.
		Ubrow	7	0	7	0	First part tolerably good, through dense jungle, latterly over heavy sand and sandhills; very difficult for guns.	Abundant, from the banks of a salt lake or dund.	None	No village. At 5*m.* 6*f.* cross the bed of the Nara river, 150 *yds.* broad, full of deep sand. Ubrow is one of the dunds or lakes formed between sandhills in the Thull, by the overflow of the Indus through the Nara, which occurs only at intervals of some four or five years. After some time the stagnant water becomes salt, but by digging a few inches at the edges, fresh water is to be obtained.
		Dadra, or Dundi Kalifa.	10	0	10	0	A tolerable road	A fine sheet of water, on the left bank of the Nara.	None; but grass abundant.	No village. Great care should be taken to keep the right road here, as anywhere off it is described as very heavy and difficult.

Sind.	Collector at Hyderabad.	Foogan Gara (Koond).	13	3	13	3	Road over desert and sand-hills, with much jungle.	From the koond or pool, in the bed of the Nara.	None	No village. This place is merely a pool in the bed of the Nara, and styled a "Koond," as distinguished from a "Dund," before described. Passed Togacha, 30 huts, about 2*m.* from Dadra, with a fine piece of water near it; several dunds passed to the right in this stage.
		Kaiwarree	10	2	10	2	First part of the road heavy sand, the rest a tolerable footpath.	Ditto ditto; abundant..	None, but forage abundant.	No village; a pool in the bed of the river, which was crossed in this stage, 1*m.* broad, and filled with low sandhills. The best road from Syud Bukr to Kaiwarree is by Meetrao, Sumahee, Jukkow, and Ibbo, but was reported at this time to be destitute of water; it lies on the opposite bank of the river.
	Political Agent at Khyrpoor.	Mareeja Dund.....	18	2	18	2	Road very heavy, crossing several dry branches of the Nara.	A dund, or lake	None	No village.
		Katur (ka-Koond)	14	0	14	0	Road sandy and heavy, with much jungle.	A koond of fresh water in the Nara river.	None	No village; but some huts a mile to the W., and a village, with shops, about 5*m.* off.
		Fariara.....	16	7	16	7	As above; the last four miles very heavy.	Abundant and good, from pools in the river.	15 shops	A respectable village of 40 houses; encamp 2*m.* to the E., on the bank of the Nara, which had fresh water in the pools from a recent overflow of the Indus. Passed two tolerable villages, Sora and Choonkee. Much jungle, but the country generally more open.
		Guggra.....	14	0	14	0	Road through a dense jungle, but the soil hard.	Abundant, from the Nara river, which has here a tolerable stream.	None	A few huts, on the Nara river.
		Tremow	14	5	14	5	First part dense jungle, then across low hills to a cultivated plain.	Abundant, from canal and wells.	Abundant; 25 shops.	A large village, in a cultivated plain.
		Roree	13	0	13	0	A good road, over a cultivated plain.	Abundant.....	Abundant ..	A large town, on the left bank of the Indus.
		Sukkur.....	1	6	1	6	Across the Indus.....	Ditto	Ditto.	
		Total..	..	..	413	1				

NOTE.—The road from Veerawow to near Roree is a mere path, or cattle-track, and should not be marched over by troops, unless care has been taken to ascertain that sufficient rain has fallen to replenish the tanks and wells, and that none of the latter, as far as Omerkote, have fallen in, or been filled up, which, owing to their depth and fragile construction, being merely lined with jungle timber, often occurs. The villages or wands on this line are mere clusters of shepherds' huts, and are frequently abandoned after a deficiency of rain. Troops should be provided with ropes, a wheel, leather bag, and bullocks, &c., in order to draw water; and a party should be sent in advance to draw the wells, and prepare temporary cisterns of

brushwood and mud. A regiment of Native infantry marched by this line in September and October 1840. Captain Del'Hoste, who conducted it, is of opinion that it should not be traversed between the end of February and beginning of October, owing to the intense heat, and the liability to inundation and malaria between Syud Bukr and Fariara. A better and shorter line is to be found as far as Chachra, by Tampee and Janpalia, as marched by the 3rd Light Cavalry in February 1844. (Vide Route No. I.) Major Delamain, who commanded, was of opinion that there were only two marches of any difficulty, viz. from Mundora to Omerkote, and he found water and forage abundant so late as the end of February; but the best and shortest of all the lines between Deesa and Sukkur is that by Jeysulmeer, when the season is favourable. (Vide Route No. IV.)

ROUTE No. VI.

FROM HYDERABAD TO BAMINAKOTE, ON THE HUJAMREE, BY JERRUK AND TATTA.

GENERAL DIRECTION, SW. BY S.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Lower Sind.	Deputy Collector at Jerruk.	Hyderabad Fort to Kotree	4	0	4	0	.....	Abundant, from Indus river.	Abundant	See Route No. X.
		Shaik Soomar-ka-Gote.	13	0	13	0	Road generally good, but in parts sandy, and much confined by thick jungle of peeloo and tamarisk.	Water from kucha wells, and the Indus, half a mile to the east.	Supplies for 200 men, and sufficient for 1,000 with 24 hours' notice; forage abundant, for camels and horses.	A small village. At 8*m.* 4*f.* pass Sorunjee Wassee, 6*f.* from the Indus. During the inundation great part of this road is liable to be flooded; the last 3 miles close to the bank of the river; encamp near the river, a mile from the village.
		Jerruk	11	0	11	0	Good road for 7*m.*; the last three or four very bad, over broken ground, cut up by watercourses, and through thick tamarisk jungle.	Abundant, from river....	Plentiful, from large bazar; forage abundant.	A thriving town, on a rocky ridge on the right bank of the Indus; the stream passes close below; encamping ground somewhat confined, and low, to the W.; but there is no swampy ground near it. Pass Raja-ka-Gote about 4*m.* from Jerruk, a large village in an open plain, close to the river; encamping ground N.
		Soonda or Soordan....	9	5	9	5	Good road, along the foot of a range of hills, over	Good, in wells to the W., and the Indus 1*m.* to	Plentiful; 11 shops; grass	250 houses; encamp in an open plain to the S. The ground to the N. is hilly;

						a hard gravelly plain.	the E. The wells are dry in March.	from a Shikargah on the left.	2*m.* from Jerruk the road winds over a pass, a high hill on the right, and deep ravines on the left. At 4*m.* 4*f.* two rather steep ascents, and thence the road is closely skirted on both sides by low hills.
Deputy Collector at Jerruk.	Shaik, Radan Peer	13	4	13	4	Open, level, and generally good, over a sandy plain; the last six miles skirted on the right by a low range of sandstone hills, and thick jungle between the road and river on the left.	Good, from a tank at the foot of the Peer's tomb.	None; forage from the bank of the tank, and a Shikargah in the neighbourhood.	A tomb with a white dome on a hill to the left; encamping ground hilly and stony, near a range of hills; the Indus some distance to the left, with much jungle between. Pass Kuramka or Kurrarukee at 2*m.*, Soomraka at 3*m.* 5*f.*, Tarunja at 4*m.* 3*f.*, and Jutta-ka-Gote at 5*m.* 3*f.*, all small villages on the left. At 6*m.* 4*f.* Heliya or Helija-ka-Gote, 60 houses, and 6 shops, water from a pool 4*f.* E., and by digging 10 feet, but none procurable nearer than the Indus, 2½*m.* off, in April or May; forage abundant. (The point of embarkation on the Indus, when vessels cannot approach Tatta Bunder, is at Moolane-ke-Meeanee or Poora, 3*m.* SE. of Heliya, the road through a Shikargah.) At 11*m.* 5*f.* pass Kunjur dund or lake, 7*f.* to the right; water a little brackish; forage procurable.
Collector at Kurachee.	Tatta, SW. angle	9	1	9	1	Generally good	Abundant, from wells, but not very good after March.	Abundant ...	A large but half-deserted town. At 1*m.* 7*f.* pass Chitturja or Chuttaiya, and at 4*m.* 3½*f.* Chuttai-ka-Gote, on the Kullaree river (dry in January).
	Kurreempoor	12	3	12	3	First and last part good and level; from the 3rd to the 8th mile over very stony ground, with jungle and ditches.	Abundant, from river and wells.	Moderate; 12 shops.	50 houses, on the left bank of the Buggaur river, with a stream of 150 *yds.*, and 3½ feet deep in December. At 3*m.* 6*f.* from Tatta pass some extensive ruins called Killa Kote, on the brow of a low rocky range, with a tank, and some cultivation. About 4*m.* further is the highest point of the range, the road over which is rugged and difficult. At 11*m.* 4*f.* Goolam Shah-ka-Gote, 100 houses, on the right bank of the Buggaur river, which is crossed by a bund.
	Carried over..	..	..	72	5				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Lower Sind.	Collector at Kurachee.	Brought over..	..	..	72	5				
		Shamroo-Ooduranee ..	17	5	17	5	Road tolerably good and level for $10\frac{3}{4}m.$, but much cut up by deep watercourses; then $3\frac{1}{4}$ miles with sandy hillocks & roots of bushes; the rest good.	Water from a large nulla, with pools and pits.	Scanty ; 3 shops.	35 huts ; encamp between the nulla and a fine grove of trees in front of Shamroo. At $4m.$ $7f.$ pass Chandia, 4 or 5 huts. At $10m.$ $4\frac{1}{2}f.$ Soora Gote, 2 huts, and a brackish well. At $13m.$ $6f.$ Moradanee, 35 huts, and 3 small wells in a nulla, 4 shops. The country is generally a level plain, with thin jungle and cultivation, and intersected by numerous canals.
		Julalkote.....	7	7	7	7	First mile over a sandy plain, with clumps of grass, roots, & two watercourses; remainder good.	Meeknee river.....	Scanty ; 1 shop.	30 huts, on the Meeknee river; good encamping ground in front of the village.
		Baminakote.....	9	1	9	1	Good road, over a level country, but much cut up by watercourses.	Abundant and good, from river.	None	A small village, near which the force under Lieutenant General Sir John Keane, in 1838, landed, and encamped in a fine open plain. It is about 3 miles SW. of Vikkur, and on the right bank of the Hujamree river. At $1m.$ $2f.$ cross the Meeknee river to Chota Garra, 20 huts, 2 shops, and good emcamping ground; the river is here 50 *yds.* wide at low-water, and 3 feet deep. At $5m.$ $1f.$ pass Chagooloo, a few huts, on a river crossed by boat, 40 *yds.* wide, and 7 feet deep at low-water. Vikkur or Gora Baree is the principal port in Sind, after Kurachee; it is 30 miles from the mouth of the Hujamree, by the windings of the river, and 20 in a direct line. The river is about 100 *yds.* wide here, with a depth of 27 feet at low-water, and a rise of 5 feet; but it shoals in many places lower down, and there is a bar at the entrance, with only nine or ten feet at high-water spring tides.
		Total..	..	..	107	2				

ROUTE No. VII.

FROM HYDERABAD TO JODHPOOR, BY OMERKOTE AND BALMEER.

GENERAL DIRECTION, E. BY N.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Collector at Hyderabad.	To Omerkote. (Vide Route No. I.)	..	..	95	7				
		Katar or Kuddar	10	0	10	0	Heavy, over many sand-hills.	3 wells of tolerable water, 63 feet deep.	None	4 huts ; much jungle of milkbush, and other shrubs, and many sandhills. At *5m. 3f.* pass Hingoola or Hingala, 1 well, 60 feet deep.
		Kytar	9	4	9	4	Ditto ditto, but the sand-hills not quite so high.	1 good well, dry by February, and 2 brackish wells, 126 feet deep, with plenty of water, 2 miles to westward.	None	A Dak Station, and some huts, on sand-hills, 500 *yds.* to right. Pass many deserted huts, and some cultivation. At *3m. 1f.* Chotiar, 1 well of tolerable water, 105 feet deep ; thence pass over five sandhills.
		Tykra or Sykra	14	1	14	1	Road generally good, with heavy sand at intervals.	4 good wells, 42 feet deep, by the road side.	None; but forage abundant.	A few huts, *4f.* to the left. At *1m. 5f.* pass Roopiar, deserted, and well dry ; at *10m. 1f.* Rooeerara, or Reweedala, a few huts, 1 mile to left of some wells to right of the road, and which depend on the fall of rain for their supply.
		Lampla or Looplao....	12	6	12	6	Road heavy, among small sand hillocks and valleys, with low jungle and grass, and occasionally a high sandhill, running north and south.	3 wells, 47 feet deep ; one to the north is good, remainder very brackish.	None	Several huts scattered around, on sandy ridges ; encamping ground low, near the wells, but good. At *7m. 4f.* Govindaree, or Govind-ka-Beereea, on the right ; 3 kucha wells. At *8m. 5f.* Julloria, or Jullowna, 4 kucha wells of good water. At *10m. 1f.* Kittliaree or Keetolia, 1 good kucha well, by the road side, huts one mile to left.
		Carried over..	..	..	142	2				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	142	2				
Sind.	Collector at Hyderabad.	Ram Sing-ka-Guddra..	14	4	14	4	Road heavy, among small sand hillocks and valleys, with low jungle and grass, and occasionally a high sandhill, running north and south.	One pucka well of sweet water, 280 feet deep, 5 furlongs to the west, and several others, filled by the rain, near the surface.	20 shops; forage scarce.	150 huts. One of the largest places in this part of the country; encamping ground spacious and good. At 6*m.* 7*f.* pass Itkan or Eedkan, 12 huts, 2 kucha wells of good water, 52 feet deep.
		Dubba	12	1	12	1	Tolerably good cart-road.	Kucha wells of good water, 60 feet deep.	None	16 houses. At 4*m.* 6*f.* pass Dubbosun, 15 houses, kucha wells of good water, 70 feet deep.
		Laswa	11	3	11	3		1 well of good water, 166 feet deep.	.....	5 houses. At 5*m.* 7*f.* Ramsir-ke-Beeree, 8 houses, kucha wells, good water, 60 feet deep.
		Kurrara	10	6	10	6	Tolerable road, occasionally sandy, but generally hard, and practicable for carts; latterly rocky, with much jungle.	2 wells of good water, 60 feet deep, in the village, one about a mile ESE.	Scanty, but procurable from Syanee, 3 miles NW.	25 houses, in the eastern angle of a lofty rocky hill, the north-westernmost of the Doongree range. There are the ruins here of an ancient city, and the workmanship of some of the temples is very fine. Encamping ground tolerable, near the well, ESE. of the village, which has abundance of water. At 3*m.* 6*f.* pass Tamliar, 15 houses, 1 well of good water, 145 feet deep.
Marwar.	Political Superintendent at Balmeer.	Jessye	9	1	9	1	Road alternately sandy and rocky, but not difficult for carts.; much jungle.	1 well of good water, 80 feet deep.	Scanty; 3 shops, but forage abundant.	32 houses, under the north face of a lofty rocky mountain, in which there is a spring above the village. At 7*m.* pass Purra, 15 houses, 1 well of good water, 130 feet deep.
		Balmeer	9	7	9	7		Abundant	Abundant....	A town, under the eastern face of a range of hills. At 3*m.* 7*f.* pass Marooree, 15 houses, 1 shop, 1 good well, 53 feet deep, and pass through hills to Balmeer.
		Doodye, or Jorye	13	5½	13	5½	Sandy, but good road, through an undulating and jungly country.	Good and abundant, from kucha wells, 18 feet deep, in the bed of a dry tank.	None; but forage abundant.	60 houses, on a sandhill, to the southward of others. At 7*m.* 5½*f.* pass Bandra, or Wandra, deserted, a mile from another village of the same name, with 150 houses, 4 shops, and a large tank.

Political Superintendent at Balmeer.	Wayitoo	12	6	12	6	Road well defined, but sandy, running across a thinly wooded country.	2 wells of brackish water, 109 feet deep.	4 shops, and forage.	125 houses. At 6*f.* pass Malpoora, 40 houses, water from Doodye. At 2*m.* 2*f.* Bapoo-ke-Dhanee, 20 huts, water as above. At 11*m.* 1*f.* Meeta-ka-Kooa, 8 huts, water from Wayitoo; steep sandhills to the right throughout this stage.
	Chandsirra, or Chandeora	11	1	11	1	Sandy and undulating road, with thin jungle.	Some kucha wells of good water, in the bed of a tank.	10 shops, and forage.	A good village, of 100 houses; some cultivation to the left of the road, and steep sandhills to the right.
	Sunlee	8	4	8	4	The first 4 miles as above; then enter a level and cultivated plain, near the Loonee river.	Abundant, from a large tank, and wells in its bed.	1 shop; forage scarce.	150 houses. At 3*m.* 7*f.* Bheemurlye, 60 houses, 1 shop, water from pits in the Loonee river, which cross to Bajawas. At 5*m.* 3*f.* 30 houses, water as before; the Loonee at Bheemurlye is 40 *yds.* broad, and shallow, with a sandy bed, and the banks liable to be inundated in the rains.
Political Agent at Jodhpoor.	Walotra	13	5	13	5	Good, level road, in a highly cultivated country, abounding in wells, along the north or right bank of the Loonee river.	Abundant.....	Abundant, of all kinds.	1,300 houses, with a fine bazar of 200 shops, on the north bank of the Loonee. At 8*m.* 6*f.* Sobawas, 16 huts, on the south bank of the Loonee. At 11*m.* 4*f.* Jessole, a decayed town, under a hillock; from thence cross the broad sandy bed of the Loonee, to Walotra.
	Khanuk	10	5	10	5		Abundant, from 1 well in the village, and many in the fields.	Abundant; 40 shops; forage scarce.	A large village, of 400 houses, on the north bank of the Loonee. At 4*m.* 4*f.* Hotloo, 100 houses; at 6*m.* Jamjanee, 200 houses. At 7*m.* 7*f.* Seeranoo, 150 houses. From Walotra the road is along the right bank of the Loonee river.
	Samdurra, or Sumundurree	10	7	10	7		Abundant.....	Abundant; 100 shops.	1,000 houses, under a hill, on the Loonee river, here 2,000 *yds.* wide, bed sand and gravel. At 1*m.* 7*f.* pass Parlo, 250 houses. At 5*m.* Jaitree, 100 houses. At 6*m.* 7*f.* Seelore, 60 houses. At 9*m.* 1*f.* Deoyallee, 30 houses; the road along the right bank of the Loonee river as before.
	Doonara	14	2	14	2		Abundant, from wells....	Abundant; 20 shops.	600 houses; the road leads through a richly cultivated country about a mile north of the Loonee. At 2*m.* 3*f.* pass Deopoora, 90 houses. At 4*m.* 1*f.* Bonawa, 20 houses. At 4*m.* 5*f.* Baldawarra, 10 houses. At 6*m.* 2*f.* Doodeawarra, 200 houses, and 40 shops. At 9*m.* 5*f.* Meanawarra, 60 houses.
	Carried over..	..	..	305	3½				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	305	3½				
Marwar.	Political Agent at Jodhpoor.	Suttulana.....	11	3	11	3	Good level road, in a highly cultivated country, abounding in wells, along the north or right bank of the Loonee river.	Abundant, from wells, and a large tank.	Abundant; 25 shops.	700 houses. Country as before. At 2*m.* 2*f.* pass Toolapnee, 40 houses. At 4*m.* 3*f.* Bachnia, 200 houses, 8 shops. At 7*m.* Doodia, 40 houses.
		Jodhpoor (Jhallore, or South Gate).	15	5	15	5	Good cart-road, over a fine plain.	Abundant, from numerous tanks, inside and outside the walls, and several fine wells.	Abundant, of all kinds.	Leave the banks of the Loonee, and at 4*m.* 4*f.* pass Salawas, 300 houses, 20 shops, and one large well. Encamping ground for a large force, on a fine plain to the east of Jodhpoor. The British Agency is 2*m.* from the Jhallore gate. Jodhpoor is a walled town, 5*m.* in circumference, and contains 30,000 inhabitants, with some handsome temples, and surrounded by fine tanks. The citadel and palace are on a rocky height, at the foot of which lies the town. The rocks on the east side of the citadel are precipitous, the highest point 450 feet above the plain.
		Total ..	..	..	332	3½				

ROUTE No. VIII.

FROM HYDERABAD TO GURRA, ON THE LOONEE.

GENERAL DIRECTION, E ½ S.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Marwar. The Thull, or Desert.	Political Superintendent at Balmeer.	Fort of Hyderabad to Omerkote. (Vide Route No. I.)	..	..	95	7				
		Ram Sing-ka-Guddra. (Vide Route No. VII.)	..	..	60	7				
		Choorar	17	4	17	4	To Oobrai, good and hard road, over high ground; thence to Choorar heavy, sandy, and undulating, with here and there a high sandhill, running north and south.	1 well, 160 feet deep, 4*f.* E. from village, water very brackish.	None; but forage abundant.	2 small wands or hamlets; good encamping round. Half-way pass Oobrai-ke-Veeree, some kucha wells of good water. Between Guddra and Oobrai are several kucha wells of good water, 60 feet deep, the water from which is carried to Guddra.
		Chotun	12	2	12	2	To Karia Kooa road pretty hard; the rest through small sandy valleys, and crossing a ridge near Chotun.	Abundant, from 3 wells of good water, 160 feet deep, 2 of them a mile N. of village; the largest well, with a trough, is to the E. There are also springs in the hill.	Scanty; 4 shops.	40 huts, under a lofty rock. The latter part of the road skirts the rock, which is on the right hand. At 7*m.* pass Karia Kooa, a deep pukka well, nearly dry in February 1844, when the huts were deserted. A good deal of open jungle on this stage.
		Mangta	22	0½	22	0½	Winding path, among sandhills, but generally hard and level; cross two sandhills only. The first 5*m.* much jungle and grass.	One pukka well, with a trough, 3*f.* NW. of the village, 160 feet deep, water good.	Scanty; 2 shops; but forage abundant, and good.	About 30 huts, under a low rocky hill; encamp W. of hamlet, near the well, in a sandy plain. At 5*m.* 7*f.* Sunnow, deserted. At 11*m.* 1*f.* Neelsir, also deserted; 4*f.* to the left said to be a good well. At 18*m.* 3*f.* Wahurloo, deserted.
		Loharoo, or Loharwa..	12	4	12	4	Heavy sandy road, over & among sandhills.	2 good pukka wells, water at 40 feet.	None	10 huts, a Dher hamlet; good encamping ground. At 8*m.* pass Lookoo, 2 or 3 huts. At 9*m.* 4*f.* Kondawa, the same, a little to the left of the road; grass and camel forage abundant.
		Carried over..	..	..	221	0½				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Marwar. The Thull, or Desert.	Pol. Superintendent at Balmeer.	Brought over..	..	..	221	0½				
		Gurra	12	4	12	4	Road very heavy, through a succession of sand hillocks and small valleys, with dwarf jungle.	Abundant, from wells, and Loonee river.	Abundant....	A large village, with a travellers' bungalow; the chief place of the district, on the right bank of the Loonee river; very bad encamping ground. The sandhills cease a few hundred yards from the river. At 7*m.* pass Burrasun, a small hamlet, with a small pukka well of good water at 50 feet.
		Total..	..	..	233	4½				

ROUTE No. IX.

FROM HYDERABAD TO KURACHEE (USUAL MARCHING ROUTE).

GENERAL DIRECTION, WSW.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Deputy Collr. at Jerruk.	Hyderabad to Heliya. (Vide Route No. VI.)	..	..	44	1	.....	Abundant, until the hot weather.	Abundant	Large village; encamping ground good.
		Chuttur-ka-Gote	11	4	11	4	Road good	Water very indifferent ...	Scanty	Small village. Country very jungly; encamping ground confined, and dusty.
	Collector at Kurachee.	Gooja	14	4	14	4	Ditto.			
		Kurachee. (Vide Route No. XIX.)	..	..	50	0½				
		Total..	..	..	120	1½				

ROUTE No. X.

FROM HYDERABAD TO KURACHEE (DIRECT), NORTHERN LINE.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Collector at Kurachee.	Hyderabad Fort to Kotree	4	0	4	0	.....	Abundant	Abundant....	A village, surrounded by trees, on the right bank of the Indus, and the head quarters of the Indus Flotilla. All arrangements for the passage of troops are made by the senior officer. The river here is 850 *yds.* wide, and runs close under the bank. Five Government ferry-boats ply daily between Kotree and the entrenched camp, on the opposite bank, besides the ordinary ferry. At 3*m.* from the fort pass the entrenched camp.
		Pitteeanee	11	0	11	0	Road stony, but good....	Plentiful and good, from wells, and pits in the Baran river.	None	No village; encamp on the west bank of the Baran river. Cross a stony nulla at 9*m.*
		Dur	13	3	13	3	Ditto ditto; the last 4*m.* through dwarf, scrubby jungle.	Ditto ditto	None; grassabundant, but coarse.	No village, but a halting-place in the bed of the Baran river, which has run to the right the whole way from Pitteeanee. Dur is at the eastern extremity of a range of rocky hills; encamping ground loose sandy soil. About 2*m.* to the SE. there are some huts and fields, with an excellent well.
		Dessooee	9	3	9	3	Road stony, through the Dur Pass, and across the beds of rivers.	Ditto ditto, in the Dummaj river.	Green and dry forage procurable.	No village; a halting-place on the Dummaj river; encamping ground extensive; road through a rocky pass, and in the bed of the Baran river, which is twice crossed from Dur, and rocky nulla at 5*m.* 4*f.*
		Carried over..	..	..	37	6				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	37	6				
Sind.	Collector at Kurachee.	Dummaj, or Damajee..	9	6	9	6	Road good	2 pukka wells, of good water, about 25 yards apart, in the bed of the river; one well is generally concealed by the villagers.	Scanty; forage abundant.	18 shepherds' huts. Country jungly and stony; the Dummaj river runs to the left on this stage. 2*m.* east is Dasoo, 20 huts, and a well; and 3*m.* or 4*m.* W. is Bulla Khan-ka-Gote.
		Truk.....	10	5	10	5	Ditto ditto, in a wide valley, with much jungle, and some fields at the 4th mile.	Wells, in the bed of the Truk river, a few feet deep.	None; forage abundant.	Halting ground 2*m.* SE. of the road, behind a hill in the bed of the Truk river; encamping ground gravelly and jungly.
		Kuddijee	17	4	17	4	Road good for 8½*m.*, except some nullas, after which it becomes stony and broken, then good, through jungle.	Plentiful, in pools in the bed of the Kuddijee river, at the base of the hills, where it passes through the range.	None; forage scarce.	Halting ground on the Kuddijee river; encamping ground bad. The latter part of the road leads among ravines, with the Kuddijee river close to the right. At 3*m.* pass Bhoot; a nulla under the Huttul-ka-Bhoot Hills, with water.
		Goorban	6	0	6	0	Rocky and bad, through the Goorban range of hills.	A small stream of clear water, and pools, at the junction of the Kuddijee and Goorban rivers.	Forage plentiful, on the bank of the river.	Halting ground at the foot of the Goorban range of hills, at the junction of two rivers. Country very wild and hilly; cross 3 stony nullas. At 2*m.* pass the Gohur Tulao, at the top of a stony ascent. At 3*m.* 4*f.* a rocky Ghaut or defile.
		Doomba	10	3	10	3	Road generally good ...	A small stream of clear water, and pools in the Doomba river; or 2 feet from the surface, by digging.	None	Halting ground good, on the W. bank of the Doomba river; cross the Katwaree, Mulleer, and Doomba rivers. Bazar and small village, with some supplies, about 2*m.* south of the encampment.
		Sapoora	8	2	8	2	Road good and hard, over a level plain, with thin jungle.	A well, 18 feet deep, in a nulla; a little bad water in a nulla, called Doyan, about a mile NE. of Sapoora, on the road.	None	A few huts. The distance from Doomba to Kurachee should be made in one stage, as the water at Sapoora is scanty.
		Kurachee Cantonment..	9	4	9	4	Road generally as above. At 5*m.* pass some rocky ridges & uneven ground, the rest good.	Abundant.....	Abundant....	At 5*m.* 4*f.* pass a pool of salt water, on the left.
		Total..	..	..	109	6				

NOTE.—This route is used at seasons when it is desirable to avoid the banks of the Indus, owing to the inundation, and subsequent malaria. It was traversed, in 1844, by a troop of horse artillery, when, owing to recent rain, there was abundance of forage and water. Commissariat supplies must always accompany troops marching by this line; and if rain has not fallen for some time, arrangements must be made beforehand for securing a supply of water at the halting-places.

ROUTE No. XI.

FROM HYDERABAD TO KURACHEE DIRECT (SOUTHERN LINE).

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Collector at Kurachee.	Hyderabad Fort to Kotree	4	0	4	0	.....	Abundant.....	Abundant....	Vide Route No. X.
		Wurr, or Baran	7	0	7	0	Road good, but sandy, with thin jungle.	A well, in the bed of the Baran river, and water is procurable by digging a few feet.	None; grass scarce; camel forage abundant.	No village, but a Post Station, on the Baran river. At 1*m.* 2*f.* pass Bultolye, a hamlet, on the Indus. At 4*m.* 1*f.* a well called Guimbirra, on the left hand.
		Rode	18	3	18	3		Plentiful and good, by digging a few feet in the bed of the Rode river.	Ditto	No village, but a Post Station, on the Rode river. At 7*m.* pass the Sataira Hill, on the right, and at 14*m.* a nulla, on the right, which has generally some water; between the hill and nulla cross some small nullas, with jungle.
		Kowranee, or Korianee.	12	7	12	7	Hard and good sandy road.	Rain-water in deep pools of the Kowranee river, which remain all the year; also by digging.	None; grass may be had 5*m.* or 6*m.* up the river.	No village, but a Post Station, on the Kowranee river; encamping ground bad, with stones and brushwood. At 10*m.* pass the Gogaree nulla, which has generally some water.
		Malmaharee, or Malmooree.....	15	3	15	3	The first part of the road stony and bad; the rest level and good.	Plentiful and good, from wells and pits, by digging in the dry bed of the Malmooree or Hurchee river.	None; forage procurable.	A wand, or temporary herdsmen's village, surrounded by high mountains; encamping ground good. At 1*m.* 1*f.* Jakra wand, with rain-water in pools. At 7*m.* 2*f.* Kara, a wand, and rain-water tank. At 10*m.* Byabund Talao, a wand, and rain-water tank. Cross a plain, running parallel with the Kara Hills, and a rocky ledge, to a nulla at 14*m.* 5*f.*
		Carried over..	..	..	57	5				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	57	5				
Sind.	Collector at Kurachee.	Guggur	17	0	17	0	The first 3*m.* very heavy, in the sandy bed of the Hurchee river, then 5*m.* or 6*m.* of rocky road; the rest gradually becomes better.	Scanty, from a pukka well in the bed of the river, 35 feet deep, and by digging, at 12 feet; being of loose sand, the wells must be lined with branches. An excellent well 5*m.* to the north, in the first range of hills, at Chundrapara.	None; grass scarce; camel forage abundant.	No village, but a Post Station, on the Guggur or Partoree river. At 5*m.* 7*f.* Run Pitteeanee, a wand, and wells, on the Hurchee river. A clump of trees, half a mile to the left of the road, marks the site of some excellent wells, 18 feet deep. Thence for five furlongs pass up a jungly rocky valley, or broad ravine, much cut up by nullas, to the Malmooree Ghaut; thence descend for two miles, over a shingly ridge of rocky limestone, with thick jungle, and broken road, for some distance further, crossing many nullas.
		Jemedar-ke-Landee ..	12	2	12	2	Hard, level, and good sandy road.	Excellent water at all seasons, from the Mulleer river.	Green grass and camel forage abundant.	A ruined tomb, on the Mulleer river; some huts, 6*f.* to the west, and at Jam-ka-Gote, 1*m.* up the river. At 3*m.* 4*f.* Jokia Jam, a dry tank, and well, with 2 bunds for rain-water, and some fields. At 6*m.* 3*f.* cross a nulla, a slight ascent, and descend a rocky table-land. At 8*m.* 4*f.* Jullal, a wand, with 2 wells of good water, at 12 feet, and much jungle. At 8*m.* 6*f.* cross the Kanta river; thick jungle, ravines on the right.
		Kurachee Cantonment.	13	1	13	1	7*m.* heavy sandy road, partly through the bed of the Mulleer river, with much jungle. The last six into camp hard, level, and good.	Abundant	Abundant ..	Cross two branches of the Mulleer river. At 3*m.* pass Sorapanee, 20 huts, and a well.
		Total..	..	..	100	0				

NOTE.—The whole of this road, which is the most direct, is practicable for artillery, except the pass in the Malmooree Hills, and is firm and good, excepting where it crosses or leads up the dry beds of rivers, when it is very heavy, with deep sand and gravel. No supplies procurable, but good water can be obtained, to any quantity, by digging in the beds of nullas. Thunderstorms are frequent during the monsoon months, among the mountains, when the dry nullas and rivers speedily become torrents, but soon subside. The country is a perfect desert. (See Remarks to Route No. X.)

ROUTE No. XII.

FROM HYDERABAD TO LARKHANA, BY SEHWAN AND THE RIGHT BANK OF THE INDUS.

GENERAL DIRECTION, N. ½ W.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Deputy Collector at Sehwan, or Collector at Kurachee.	Hyderabad Fort to Kotree	4	0			.....	.....	.....	Across the river. (Vide Route No. X.)
		Bada.....	9	2¾	4	0	Road level and good, generally along the bank of the Indus, but broken, sandy, and confined by bushes, near Lalloo Meerjut.	Abundant, from river....	Moderate....	A large village, on the river bank; fine encamping ground to the south. At 1*m.* 5½*f.* pass Kanpoor, on left. At 3*m.* 3½*f.* Ismael-Puttun, with fine trees, gardens, &c. At 5*m.* 1¾*f.* Powar Gote, on right. At 5*m.* 4½*f.* Lalloo Meerjut; cross two heavy nullas. At 5*m.* 7¾*f.* Rajeera Gote.
		Oondurpoor.....	11	2¾	11	2¾	Road good, over a hard and gravelly plain, for 10*m.*, occasionally a little rugged and broken; then cross a broad shallow nulla, and a marshy plain; quite dry in Feb.	Ditto ditto; the bank is very high here, and there are better watering places half a mile above or below.	Abundant, on notice; forage scarce.	A large village, on the river bank; fine encamping ground SW. Pass Shikarpoor at 1*m.* 2½*f.*; Peer Ukkra Gote at 7*m.* 2½*f.* Pass also an extensive Shikargah, on the right, and cross two deep nullas near Oondurpoor.
		Kassye-Gopang	11	5½	11	5½	Road good for 2½*m.*, then sandy and winding, between fields and bushes, as far as Beea; the remainder a little broken; a better road about 1*m.* to left.	Abundant, from river....	Moderate; also forage.	A large village, on the bank of the river; good and extensive encamping ground, about 500 *yds.* from the river. Pass Shore Budnapoor, 20 huts, at 2*m.* 6*f.*; and cross 2 nullas. Kraijyeo-na-Gote, a large village, at 6*m.* 3*f.*; and Beea, also large, at 6*m.* 7½*f.*; many trees, and a deep canal between the two. Kanota, a large village, at 7*m.* 7½*f.*, and Gangra, a small village, and deep canal, at 8*m.* 3¾*f.*; cross three more large canals to Kassye. Some low, rugged, stony hills to the rear of encamping ground.
		Carried over..	..	..	36	3				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	36	3				
Sind.	Deputy Collector at Sehwan, or Collector at Kurachee.	Majindra	9	3½	9	3½	Road broad and open, and slightly undulating, over stony, dusty, and barren plains; 3 nullas at 5½*m.*	Abundant and good, from pools in a nulla, or branch of the Indus.	Abundant; a large bazar, and forage from a Shikargah.	A large place, on a branch of the Indus; encamping ground W., on an extensive barren plain; a Shikargah on the right for 8*m.* At 3½*f.* pass Gopang, a small village. At 1*m.* 3*f.* Rajree, a small village, with excellent encamping ground. At 7*m.* 6½*f.* Tareez Mool, a small village.
		Sun, or Sain	11	6	11	6	Good broad road, with the exception of some sandy hillocks, at 3½*m.*, and 3 nullas; the last 3*m.* heavy.	Abundant, from the Indus.	Abundant; also forage.	A large village, near the Indus; good encamping ground, SE., 200 *yds.* from the river. Country generally cultivated on the right, and barren on the left, in this stage. At 1*m.* 3½*f.* pass Oorora Gote, a small village; at 2*m.* 4*f.* Kachee, large; at 2*m.* 6½*f.* Laka Gote, large; at 5*m.* Laloo, small; at 6*m.* 1*f.* Fukeer Gote, small, with a bund in a nulla, to the NE. At 7*m.* 1½*f.* Noorpoor, a middling village, with fine trees, a pukka well, and wet nulla, and an old fort. At 9*m.* 3*f.* Syud Bakul Shah, a middling village, with much cultivation, on a branch of the river.
		Amree	12	1	12	1	Sandy road for 2½*m.*, then good for 7*m.*, after which some heavy sandy ground; chiefly among fields.	Ditto ditto	None	A small village, with much cultivation in the vicinity; good and spacious encamping gound, 200 *yds.* from the river, to the S.; cross the dry bed of the river to Hashim Cheekur, a small village at 2*m.* 4½*f.* At 3*m.* 3½*f.* Meersha Wudda, and at 4*m.* Purrobera, both large villages, on the right. At 4*m.* 4½*f.* Gancha, small; and at 5*m.* 7*f.* Dera Khan Gancha, a large village. At 7*m.* 6*f.* Maka Chur, small; and at 9*m.* 0½*f.* Burra Cheekur, a large place, on the Indus, with fine tombs; much cultivation, and good encamping ground.

Deputy Collector at Sehwan, or Collector at Kurachee.

Lukkee	11	0½	11	0½	The usual road, by the bank of the river, is narrow, and intersected by the cuts for waterwheels, which have bridges, but not wide enough for guns. The upper road, at the foot of the hills, is longer, but is fit for artillery.	Abundant, from river, and pools.	Abundant ..	A town, with good and extensive encamping ground to the S. or N. At 5*m.* pass Tittee; a mosque, and a few houses, on an eminence to the left. At 7*m.* 3*f.* Powhur, a large straggling village; at 8*m.* ½*f.* Abad, another similar village; at 9*m.* 2*f.* Bajoora.
Sehwan	13	0½	13	0½	Good, with the exception of the pass over the Lukkee Hills. The approach by the path on the river bank, over which the artillery passed in February 1839, was washed away in September of the same year.	Abundant, from tanks and pools, left by the inundation, and pukka wells.	Abundant, of every kind; also carriage.	A large town, at the junction of the Arul river with the Indus. The Munchur Lake is about 8*m.* to the W.; encamp SW. of the town, in low and confined ground, on the bank of the river, near some tombs. At 1*m.* 0½*f.* pass Techewan; at 2*m.* 2½*f.* Bacha; at 4*m.* 3*f.* Kotanga, small villages: the last is a usual halting-place, before crossing the hills. At 6*m.* 5*f.* the pass commences. It has an ascent of 3*f.*, steep, and difficult for laden camels, being over large flags of shelving rock, very slippery and rugged; the descent is 2*m.* long. At 10*m.* 3½*f.* pass Kottai, where there is good encamping ground.
Tultee, or Turrotee....	6	1½	6	1½	Good, hard, and level, through cultivation, and over green turf; the crossing of the Turrotee dund and Arul river being the only difficulties.	Abundant, from a fine lake or dund.	Abundant; also carriage.	A large and rich village, with much cultivation, and fine trees and gardens; good encamping ground for a regiment on the lake north of Sehwan; cross the Arul river by a ferry. The water here is not deep, but the bottom is unsafe; one foot deep in March. There is a ford for cattle at Meeanee, 1½*m.* to the W., which lengthens the march 2*m.* Pass Kuinapoor at 2*m.* 4½*f.*, Halipootra at 5*m.* 2*f.*, and Meeanee at 5*m.* 7*f.* Country level, and highly cultivated.
Dadoo	13	6	13	6	Winding, among fields, through a cultivated country, and difficult after rains.	Good and abundant, from kucha wells, in and close to the village.	Plentiful	A large village; good encamping ground, S. At 2*m.* 1*f.* pass Bullalpoor, a large village, with a good bazar, and open encamping ground; pass also several small villages.
Carried over..	..	..	113	6				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Deputy Collector at Sehwan, or Collector at Kurachee.	Brought over..	..	..	113	6				
		Rokun	15	0	15	0	Good and broad for 5*m.*, then winding, among rice and corn-fields.	Abundant, from river Indus, and a dund.	Abundant ..	A large village, on the bank of the river, with much cultivation; encamping ground on the west, or on the north, near the dund; pass Moondra, a large place, with water from wells and a dund, at 5*m.*, and several small villages.
	Deputy Collector at Larkhana.	Nowree, or Nara.....	12	7	12	7	First part of road along rice and corn-fields, near a dund; the last 3 miles narrow, rough, and impassable for guns, without pioneers, the cuts for wells being very deep, and having only narrow bridges.	Abundant, from a dund, half a mile off, and 4 kucha wells.	Abundant, on notice.	A middling village; good encamping ground for a regiment. Pass numerous small villages, with cultivation near them, and scattered jungle.
		Alli Khan Schur.....	12	0	12	0	Road broad and good, the first part among fields, latterly through thick jungle; canals and watercuts as before.	Abundant, from the Nara river.	Abundant ..	A small village; encamping ground good for a regiment. Pass several small villages, and cross the Nara river at Neera, broad and deep, but dry early in March. Much thick jungle on the latter part of this stage.
		Dookree	11	0	11	0		Abundant.....	Abundant, on notice.	Two small villages, on the right bank of the Nara river, along which the road winds, passing many small hamlets, with fields, and a good deal of jungle.
		Larkhana.....	16	0	16	0	Road narrow and winding, among fields and jungle, and difficult to find.	Abundant, from wells, and the canal.	Abundant ..	A large town, about 8*m.* from the Indus, with a large canal to the north. A wing of Native infantry is stationed here; encamping ground good, N. of the town. Country as on last stage.
		Total..	..	..	180	5				

NOTE.—This route requires the aid of pioneers at the Lukkee Pass, and afterwards at the watercuts between Sehwan and Larkhana, before artillery could pass by it. The latter part of the route, as here given, is the most direct line, but is only open for troops from the middle of November to the middle of March, the inundation rendering it impassable in the interval. The route from near Sehwan to Larkhana, by the west of the Munchur Lake (No. XVI.), although longer, is perfectly practicable for guns, and well provided with water.

ROUTE No. XIII.

FROM HYDERABAD TO SUKKUR, BY THE LEFT BANK OF THE INDUS.

GENERAL DIRECTION, N. BY E.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Collector at Hyderabad.	Hyderabad Fort to Katree	8	0	8	0	Good road, over a plain, with light jungle; several canals and nullas to cross.	4 kucha wells, and from the bed of the Fullailee.	None	Small village, on the left bank of the Fullailee. The villages of Meeanee and Dubba, and field of battle of the 17th February 1843, are near this place. Cross 10 canals and the Fullailee river to Katree.
		Muttaree	10	0	10	0	First 2*m.* along the bed or bank of the Fullailee; the rest over sandy plain, with many water-courses.	Abundant	Abundant	A thriving town, with a creek from the Indus, a mile to the W., and the Indus a mile further in the same direction. Country cultivated; cross the Nusseer *Wah*, and two other large and five smaller canals. At 2*m.* pass Syganabad; at 4*m.* Bhow Jow Daira.
		Seekat, or Shahikat ...	5	3	5	3	Heavy and sandy road, over a plain.	2 wells, and tank	Abundant; fr. 15 shops.	200 houses; encamping ground E. of village, and rather confined.
		To Sukkur	..	..	180	5				
		Total..	..	..	204	0				

NOTE.—There is also a route from Hyderabad to Sukkur along the right bank of the Indus, crossing the river to Kotree, and proceeding by Sehwan and Larkhana (Vide Routes Nos. XII. and XVIII.), but it is 30*m.* longer than the above, and has a difficult pass, over the Lukkee Hills, near Sehwan.

ROUTE No. XIV.

FROM KURACHEE TO HOJA JAMOTE, VIA SHAH BILAWUL.

GENERAL DIRECTION, N. ½ W.—SEASON OCTOBER.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Collector at Kurachee.	Kurrachee Camp to Muggur Peer	9	0	9	0	First 5*m.* good, but sandy, then rugged, among hills, and not fit for carts.	Abundant, from hot springs.	None	Cross the sandy and shallow bed of the Lyaree river twice in the first 2½*m.* The Muggur Peer is a swamp among hills, fed by hot springs, and swarming with alligators. Some tombs and trees here. Country a sandy and rocky desert.
		Chukkoora Nulla.	11	3	11	3	A tolerable cattle road, but heavy, with several nullas to cross.	Brackish water, in pools; abundant and good.	None	A halting-place on a nulla. Country as before.
		Hubb River.....	5	6½	5	6½		Ditto ditto.	None	A fine stream of good water, 18 inches deep, with many deep pools. There are no villages in this part of the country, but shepherds pitch their tents wherever forage and water are found.
Lus, in Beloochistan.	Commissioner of Sind, at Kurachee.	Baboora River.....	14	7½	14	7½	The first 1½*m.* as before; the rest rocky and difficult.	Scanty, and very brackish.	None	No village. At 1*m.* 3½*f.* pass the Lohanee nulla, with a little water, and cross several small nullas, running from the mountains on the left.
		Veerab-jo-Gote	8	1	8	1	Road among hills; very rocky and bad, with many nullas.	Abundant, from pools in the Veerab river.	Scanty; 2 shops.	A village of 40 shepherds' huts, with numerous sheep and cattle. At 3*m.* 3*f.* cross the Veerab river, water scanty; the road continues in the bed for 2*m.* 4*f.*; lofty hills on both sides of the road.
		Junction of Veerab and Amree Rivers	11	2	11	2	Road very bad, hardly passable for camels, continually crossing the Amree river, and nullas.	Scanty, from holes in the bed of the river.	None	At 2*m.* 5½*f.* cross the Veerab river. Country very wild, and desert; a valley between chains of hills running north and south.
		Shah Bilawul	11	2	11	2		Abundant, from a fine spring.	None	A narrow but fertile valley, in which two regiments might encamp, to the left of the road, running for 2 or 3 miles to the

Lus, in Beloochistan.

Commissioner of Sind, at Kurachee.

Junction of Shah and Samote Rivers.....	15	2	15	2	Road as before, the Shah and Samote rivers being close to the line of route, and crossed, full of large stones.	Water in pools	None	W. There is a mosque and tomb, and many fruit and large babool trees here; the only resident a Fakeer.
Saheb Khan-jo-Gote ..	7	0	7	0		Abundant, from Samote river.	None	One mile from the halting ground pass the ruins of a village. The country is very rugged and difficult, but more open, the hills receding to the left.
Jooma Jamote	11	0	11	0	A very difficult road, with two bad passes, which a camel could only pass by the aid of ropes.	Abundant, from Vindur river.	None	Deserted village. Lofty hills to the N.; after leaving last ground, the road turns from N. to W.
Kunnaraj River	14	1	14	1	Bad road, in a narrow valley, between hills, with numerous small stony nullas.	Abundant and good	None	Deserted, except in the rains. At 6*m.* 2*f.* a spring of good water, in a nulla at the foot of a small Lukh or pass, with an ascent of 6 and descent of 5 furlongs, not very steep, but composed of huge slabs of rock; then commence the ascent, 5 furlongs, of a very steep pass, with a descent of about the same length. The route from last ground is nearly SW.
Hoja Jamote-ka-Gote..	9	4	9	4		Abundant and good, from Kunnaraj river.	4 shops.....	A running stream, 3 feet deep. The road from last stage turns again to the northward.
Total..	..	..	128	5				40 temporary huts, on the Kunnaraj river, only occupied in the hot and rainy seasons, when the heat on the Hubb river is very great. The village is called from Hoja, the Chief of the Jamote tribe. Antimony and lead are found, and copper is supposed to exist near the Kunnaraj river.

ROUTE No. XV.

FROM KURACHEE TO JERRUK, VIA GARRA.

GENERAL DIRECTION, E. BY N.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Deputy Collector at Jerruk.	Camp at Kurachee to Garra. (Vide Route No. XIX.)	..	..	37	7½				
		Hallajee	12	0	12	0	Road to Kucheree good, except across the Hurchee river; the last 5*m.* over low stony hills, covered with milkbushes.	Abundant and good in February 1840, from a dund to the S., several miles in extent.	Grass, wood, and cattle abundant.	A few huts on an extensive dund, which are moved as the water alters. At 6*m.* 6*f.* pass Kucheree, a small village and mud fort; 2*m.* from Garra the country becomes bushy.
		Sya or Nya	16	0	16	0	Excellent, hard, and level road.	Abundant and good, from a spring, and a pool in a nulla, 200 *yds.* by 70, in February 1840.	None	No village, but a halting-place at a spring of fresh water near a rocky ridge and some tombs, and a pool in a nulla. Six miles from Hallajee enter the direct road from Kurachee to Jerruk, by Run Pitteeanee,
		Koodia	8	6½	8	6½	Indifferent road, but practicable for carts.	Abundant	Scanty	100 huts. Cross the Kowranee and Rood rivers, with heavy sandy beds, and a deep stony nulla near the former. At 6*m.* 6½*f.* pass Joon Peer, a mosque and spring of fresh water, on the Rood river, which is occasionally impassable after heavy rains.
		Jerruk	14	3½	14	3½	A stony plain for 2*m.*; then a rocky nulla and stony ridge; then skirt the Soneree Dund, and cross a very difficult nulla. The whole road difficult, but practicable for carts.	Ditto	Abundant....	300 houses on a rocky ridge on the right bank of the Indus, the stream passing close below. Encamping ground somewhat confined and low to the west, but dry.
		Total..	..	..	89	1½				

NOTE.—There is a more direct road from Kurachee to Jerruk, by Run Pitteeanee, as follows, but there is a difficult ghaut, and two bad nullas to cross, between Kafir-ka-Dund and Sya, which render it objectionable:—

	Kurachee Camp to Run Pitteeanee. (Vide Route No. XI.)	..	..	36	4				
	Kafir-ka-Dund, or Joga Syn	10	0	10	0	Tolerable road.....	Abundant, from a dund..	None	No village.
	Sya	14	0	14	0	Bad and stony road.			
	Jerruk, as above.....	..	..	23	2				
	Total...	..	..	83	6				

ROUTE No. XVI.

FROM KURACHEE TO SHIKARPOOR, BY THE WEST BANK OF THE MUNCHUR LAKE, AND LARKHANA.

GENERAL DIRECTION, NNE.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Deputy Collector at Kotree.	Kurachee Cantonment to Dummaj. (Vide Route No. X.)	..	..	62	2				
		Murrye River	9	4	9	4	Pretty good road, through an open coutry.	By digging a few feet in the broad, sandy bed, and in pools.	None; but forage.	Ahmed Khan-ka-Tanda, a large village, with some supplies, is about 5*m.* W. or SW. The halting ground on the Murrye river varies according to the state of the water, and this stage may vary from 9 to 12 miles in consequence.
		Dooba or Dooee River..	8	6	8	6	Good road, through an open valley; cross 4 rocky nullas.	Good pools in the Barun river, and by digging when there is no running stream..	None; forage scanty.	There are two roads from Murrye to the Dooba ground, one on either side of a low range of hills: that to the right is the usual route, though the other is said to have most water. Much cattle, and many temporary huts, also some tombs on this road. 3*m.* short of Dooba is Buchanee, also a good halting-place. Dooba is on the Barun river, which runs into the Indus a few miles below Kotree.
		Carried over..	..	..	80	4				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	80	4				
Sind.	Deputy Collector at Kotree.	Kajoor River	8	3	8	3	Tolerable road for 5*m.*; then stony and bad, through the same valley as before; several nullas, and thin jungle.	Plentiful, in pools in the Barun river, among bushes.	None; camel forage abundant; grass in moderate quantities, under the bushes on the hills to the NW.	Tolerable encamping ground for several regiments about half a mile on the N. side of the river. Country wild and jungly, but sufficiently open for the passage of guns. A few small villages within 3 and 4*m.*
		Pokun or Pokrun River	9	4	9	4	Stony and bad road for 4*m.*, winding round the western base of the Dooba Hills, with the river on the left.	Plentiful, from the Pokun river, in large pools, and a stream.	None; grass scarce & bad; camel forage abundant.	Cross the river from Kajoor. At 1*m.* 4*f.* road confined between the river and hills. At 3*m.* 4*f.* again cross the river; jungle thin until near Pokun, where the tamarisk is very thick; extensive encamping ground, but gravelly.
		Mulleer.....	12	5	12	5	Road good for 4*m.*; then bad for ¾*m.*, crossing the stony bed of a torrent; after which it is good, except some stony nullas, within 3*m.* of Mulleer, when it is very rough & stony, through the bed of a torrent.	Abundant and good, from pools in the rocky bed of the Mulleer river.	None; plenty of forage on the hills.	Encamping ground open, but hard and gravelly. Lofty hills on each side of the road, with much jungle near them, and some shepherds' huts. At 3½*m.* the road enters the defile of the Joorun river, and continues along its bed and banks for 3*m.*, very rough and stony.
		Chorla River	11	0	11	0	1 mile very bad, down the rocky bed of the Mulleer river; then tolerable for 3*m.*; 7 nullas to cross, but quite practicable for guns, if cleared a little.	Plenty of good water in pools in the Chorla river.	None; forage scarce, and bad.	Some fine tombs and good encamping ground near. At 9*m.* cross Warkee river, which joins the Chorla half a mile to the left, at the foot of a rock, where there is water all the year in a pool; a bad and narrow defile, 200 *yds.* long, about 4*m.* from Chorla.
		Nur-ka-Shuhr.....	13	5	13	5	Bad and rocky road, for 6*m.*; the rest level and good.	A plentiful stream of good water can be turned into camp, from a bund in the neighbourhood.	Scanty; forage abundant; supplies procurable from	A village in the cultivated plain near the Munchur Lake; good encamping ground. Country through jungle; route leads along the bank of the Chorla river, the

								Jangeera Bazar, Teeranee, &c.	valley gradually widening; pass the small village of Rorce, a mile to the right, at 12*m.* 6*f.* Sehwan is about 12*m.* distant from Nur-ka-Shuhr, to the NW.
Deputy Collector at Sehwan.	Shah Hussan	14	0	14	0	Very good and level, with a few narrow watercourses.	Good, from kucha wells, near the lake, half a mile east.	15 shops; plentiful; also forage.	50 houses; encamping ground indifferent, to the south. Country at first jungly, then cultivated, and road winding round from the S. to the W. of the Munchur Lake; half-way pass the village of Treenee, or Tremree, on the S. bank of the lake.
	Chinnee	6	3½	6	3½	Excellent road, part gravelly, and part over the dry bed of the lake; watercourses as before.	Good, from wells, and by digging 2 or 3 feet in a cut, or canal, from the Arvul river.	Abundant; 22 shops; grain & forage for 200 or 300 horses; firewood scarce.	A large and well populated village, in a highly cultivated country; extensive encamping ground.
	Johee	13	0	13	0	Good road, over a plain, but 2 deep canals to cross, dry in December.	Indifferent, from a pukka well and trough in the village, and others in the vicinity.	Abundant, fr. 45 shops; also forage.	A large village, with good encamping ground, in a cultivated country.
	Drigg, or Dreigh	8	0	8	0	Good road, except 2 nullas in the first 2*m.*, with some water till December; the second has an unsound bottom.	Abundant and good, from a canal from the Nara river.	Scanty; 1 shop; green forage procurable.	A small village, with extensive encamping ground. The Nara river half a mile to the right.
Deputy Collector at Larkhana.	Tulree	10	0	10	0	Road good, but crossed by some watercourses; the latter part very jungly.	Indifferent, from pits in a cut from the Nara river.	Abundant; also forage.	A middling village. The Nara river 1½*m.* to the right. Pass the villages of Jumal-ka-Shuhr and Puljee. 3*m.* to the N. the villages of Kolea or Choonee, on the bank of the Nara, have better water and encamping ground.
	Peer Goza	13	2	13	2	Road generally good, through cultivation, and along the banks of the Nara; 1 difficult nulla.	Abundant, from 2 pukka wells, and 2 pools in the bed of the Nara.	Moderate, fr. 6 shops; forage abundant.	80 houses. Pass the villages of Golia Meer Khan, Kumbur, Koomb, Shah Ismael, and Gara; road winds along the bank of the Nara, and is much intersected by watercourses. Country highly cultivated.
	Mahir or Maihir	12	2½	12	2½	Good road, partly over a level and hard desert, latterly through jungle and cultivation.	Good, from 4 pukka wells.	25 shops; abundant, except cavalry grain.	95 houses. Extensive and good encamping ground; pass several villages near the line of route, and cross several canals from the Nara river, which is a mile or two on the right.
	Carried over..	..	..	212	5				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	212	5				
Sind.	Deputy Collector at Larkhana.	Nusseerabad.....	16	5	16	5	Good road, over a hard, level desert, with 2 bad nullas.	Abundant, from one pukka and one kucha well.	Abundant, fr. 25 shops; forage scarce.	A large village, with a small mud fort, and good encamping ground. At 6*m.* pass Nussooee. Country generally uncultivated, with thin jungle.
		Khyrpoor.....	13	4½	13	4½	Excellent road, the latter part through rice-fields.	Scanty, from 2 kucha wells, and not very good in February.	Tolerably ample, from 10 shops; forage scarce.	125 houses, and a good mud fort, with five towers; encamping ground indifferent, in rice-fields. Country as before, but fields near the villages, of which four are passed in this stage.
		Larkhana.....	11	3	11	3	Road very good	Abundant, from wells, and pits in the canal.	Abundant, of all kinds.	A large town, on the S. bank of the Ghar, a canal or inlet from the Indus, filled by the inundation; both banks of the canal richly cultivated. Fort Fitzgerald, at Larkhana, was for some years the head quarters of the Sind Camel Corps. Encamping ground extensive, on the north of the canal. Pass the villages of Abra Kalora, Nubbee Buksh, Abra, and Nuzzur Mahomed.
		Nowadera.....	12	4	12	4	Good road, but dusty, and confined by jungle, along the bank of the Ghar; cross 4 canals, easily passed when dry.	Plentiful and good, from 4 pukka wells.	12 shops; abundant; also forage.	100 houses; good and extensive encamping ground NW., but covered with brushwood. Country very jungly in parts, with fields near villages; cross the Ghar at Larkhana, which runs on the right the whole way; pass the villages of Doodye, Chucburpool, Mahoolee, and Keer, and cross four canals, by bridges during the inundation.
		Bungool Dera.....	10	3½	10	3½		Moderate, from one well..	Moderate; 7 shops.	40 houses. At 2*m.* 7*f.* pass Rahooja, deserted. At 4*m.* 0½*f.* Bambut Poora, 40 houses, 3 shops, and 1 well. Country as before.
		Khair.....	7	·2	7	2	Good road, over level country.	Abundant, from wells in the villages.	Ditto	A good village, of 50 houses. At 2*m.* 6½*f.* pass Gahaija, 100 houses, 12 shops; water abundant, from wells, and good encamping ground. Country as before.

Sind.	Collector at Sukkur.	Shikarpoor	10	0½	10	0½	Abundant, from wells and pools.	Abundant, of every kind.	At 6¼ *f.* pass Kumbooa, 20 houses; at 2*m.* 3½ *f.* Nowsir, or Nowshara, 50 houses, 6 shops; water from wells, and good encamping ground. At 5*m.* 6*f.* Saman Kote, a small village. Shikarpoor is a town of some 7,000 houses, chiefly of unburnt brick, one-half belonging to Hindoos of the Bunnia, Lohana, and Bhatia tribes. It is surrounded by a decayed mud wall, is 3,800 *yds.* in circumference, and has an extensive bazar, with nearly 900 shops. The walls are surrounded by trees, gardens, and stagnant pools; water is found at 12 and 15 feet from the surface, and large tracts in the neighbourhood are liable to be flooded by the inundation of the Indus. The Sind canal runs past the city from the Indus to Larkhana, and is navigable from April to October. Shikarpoor is a place of great commercial importance, and a vast extent of banking business is carried on.
		Total..	..	..	294	3½			

NOTE.—The road from Kurachee to the Munchur Lake is a stony desert, but is practicable for troops of every arm from September to March, with some aid from pioneers for guns. Water is to be found in sufficient quantity, or can be procured by digging at the halting-places, but forage is scanty at some. Sheep and cattle can be procured from shepherds along the whole distance, but flour, rice, grain, and bazar supplies are not to be had. The route as above given, by the west of the Munchur Lake and right bank of the Nara to Larkhana, is better provided with water than that by Schwan, but it is nearly 20 miles longer. For this latter route vide Route No. XII.

ROUTE No. XVII.

FROM KURACHEE TO SONMEEANEE.

GENERAL DIRECTION, NW. BY N.—SEASON, NOVEMBER 1840.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Collector at Kurachee.	Kurachee Cantonment to Hubb River	15	2	15	2	Good hard road; some parts rocky.	Abundant and good, from a stream, and a pukka well on the right bank.	None; grass scarce.	No village, but a fine well on the Hubb river. At 1*m.* 6*f.* cross the dry, sandy, shallow bed of the Kurachee river. At 2*m.* 4*f.* a shallow inlet of the sea. At 4*m.* 4*f.* and 9*m.* 5*f.* the Patolee and Puttoo tanks, dry. At 10*m.* 3*f.* and 12*m.* 3*f.* cross low rocky ridges, of no difficulty. At 14*m.* 1*f.* a muddy nulla; and from thence through thin jungle to the Hubb, which has a sandy and pebbly bed of 400 *yds.*, with low, easy banks. Tamarisk jungle abundant in and near the river.
Lus.	Commissioner of Sind, at Kurachee.	Beedoke	14	7	14	7	Tolerable road; sandy and rocky, with some deep ravines to cross.	Good, from 2 or 3 kucha wells, and to be had by digging 9 or 10 feet.	None	No village; some wells at the mouth of a ravine near the sea, under cliffs which run into the sea. *Half a mile* SE. cross the Hubb river and a nulla, and pass over a hard clay plain, sprinkled with milkbushes for 3*m.*; then enter the Gundoba Lukh, a narrow pass in the Pubb Mountains, stony but easy, and gradually widening. At 5*m.* some tombs, and a small tank. At 5*m.* 7*f.* cross the sandy bed of the Bhowanee river, with easy banks; a brackish well in it, 55 feet deep. At 12*m.* cross the Bagul ravine, deep, and the right bank steep and difficult, the left sandy and easy. Between those two cross 5 deep sandy ravines

Lus.	Commissioner of Sind, at Kurachee.	Dooda	6	2	6	2	Good road, over a hard, level, sandy plain, with thin jungle.	Ditto ditto	None	running from the Pubb Mountains on the right, none of them difficult; from the Bagul ravine pass over an undulating sandy table-land, and descend by a winding pass (much improved by the Pioneers) to the mouth of the Beedoke ravine, near the sea shore. No village; wells about 3*m.* from the sea, with sand cliffs about 400 *yds.* to the right. At 1*m.* 5½*f.* pass a well of good water 30 feet deep, 400 *yds.* up a ravine to the right, called Booreeda. At 3*m.* 3½*f.* a well of brackish water, close to the left, called Karree. At 5*m.* 0½*f.* 2 wells of good water, 300 *yds.* to the right, up a ravine called Chubbaijee, 3 feet in diameter, and 40 feet deep. Country level and sandy, with thin jungle.
		Sonmeeanee	13	6	13	6	Road for 11*m.* as above, hard and good; thence over sandy and undulating ground.	Tolerably abundant, from wells, but all more or less brackish.	Abundant; but grass scanty.	A small town, the only seaport of the province of Lus, among low sandhills, at the head of a shallow bay, the shores of which are of hard sand. Large boats lie off one mile to the west. At 1*m.* 1*f.* pass 3 slightly brackish wells to the right, called Baidee. At 7*m.* 1*f.* 3 good wells, 10 feet deep, 400 *yds.* to the left, called Oka, their place marked by two mango trees. At 11*m.* 4*f.* cross the shallow, sandy bed of the Indra river.
		Total..	..	..	50	1				

NOTE.—This route is easy for camels throughout, and, in November 1841, was made practicable for carts and guns, by improving the road up the Beedoke ravine, and the approaches to the ravines between the Hubb river and Beedoke. For the passage of troops, some of the wells should be cleared beforehand.

ROUTE No. XVIII.

FROM KURACHEE TO SUKKUR, VIA WEST BANK OF MUNCHUR LAKE, AND LARKHANA.

GENERAL DIRECTION, NNE. ½ E.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Deputy Collector at Larkhana.	From Kurachee Cantonment to Larkhana. (Vide Route No. XVI.)	..	..	254	1½				
		Nowadera	12	4	12	4	Good road, but dusty, and confined by jungle, along the bank of the Ghar; 4 canals, easily passed when dry.	Plentiful and good, from 4 pukka wells.	12 shops; abundant; also forage.	100 houses; good and extensive encamping ground NW., but covered with brushwood. Country very jungly in parts, with fields near village; cross the Ghar at Larkhana, which runs on the right the whole way. Pass the villages of Doodye, Chuchulpoor, Mahoolee, and Keer, and cross four canals, by bridges during the inundation.
	Collector at Sukkur.	Muddunjee	11	4	11	4	Road good, partly through jungle, along the bank of the Ghar; 7 canals, as before, rather heavy in some parts.	Plentiful, from 3 kucha wells, and some pukka.	Scanty, from 5 shops; forage abundant.	85 houses; encamping ground confined and jungly. Country as before. At 5*m.* pass Ranooja; shortly before reaching Muddunjee the Ghar turns off to the right.
		Jullee	17	0	17	0	Tolerable road, but much confined by jungle, and cut up by nullas and cracks after the inundation.	Abundant, from wells and pits, and river Indus a mile off.	Abundant....	A middling village, with good encamping ground about a mile from the Indus, which is reached about 7*m.* 4*f.* from Muddunjee, where the village of Sullianee formerly stood, and was recently washed away. Pass four villages between Muddunjee and Sullianee, from whence a thick jungle and Shikargah, and many nullas, along the bank of the Indus.
		Sukkur	11	0	11	0		Abundant, from wells and river.	Ditto	A town and cantonment on the right bank of the Indus, divided by the island and fort of Bukkur from the town of Roree; pass five small villages. Country as before, but more cultivation and less jungle.
		Total..	..	..	306	1½				

NOTE.—The road from Muddunjee to Syudabad, near Sukkur, is impassable from June to October; the communication is at that season carried on by boats.

• ROUTE No. XIX.

FROM KURACHEE TO TATTA BUNDER.

GENERAL DIRECTION, E.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Collector at Kurachee.	From Cantonment Kurachee to Jemadarke-Landee	13	1	13	1	Road for six miles hard and good; then sandy, heavy, and confined by jungle.	Abundant and good all the year, from the Mulleer river, and 2 or 3 wells.	None; but green grass and camel forage abundant.	A ruined tomb, and a few huts; encamping ground very good and clear, on green turf near the huts, about 800 *yds.* from the Mulleer river. At 6*m.* cross the sandy bed of the Mulleer river, which then runs to the left of the road as far as the halting-place. Country rocky and sandy.
		Wuttaijee	15	1	15	1	Road hard and good, but requiring some repairs at the numerous nullas.	A pukka well of good water, and 4 kucha wells.	None; but grass and camel forage abundant.	An old mosque, and a few huts; encamping ground low and very sandy, & rather confined. At 10*m.* pass Peepree, a halting-place at a river, where water is found by digging a few feet. Cross nine nullas in this stage.
		Garra	9	5½	9	5½	Good road, along the bank of the Garra Creek, over sandy and stony soil.	1 sweet and 5 brackish kucha wells; abundant; to be had by digging 8 feet.	30 shops, with moderate supplies; forage very scarce.	250 houses, on the right bank of the Garra Creek, in a stony and sandy desert; cross 2 nullas in this stage. Encamping ground heavy sand, on the E. of the village. A Native regiment at one time stationed here.
		Gooja	12	1	12	1	Tolerable, but heavy road in the dry season, but after rain or during the inundation very difficult, from mud, and many nullas and canals, and confined in parts by jungle.	Abundant, from a dund, and kucha wells.	Scanty, from 7 shops; & good grass very scarce.	60 houses, in a fine and fertile country, between two streams, with a bund to retain the water; encamping ground on turf, in front of and in a fine grove of trees. After leaving Garra, pass along the sandy bed of the creek for 700 *yds.*, much jungle, and some heavy sandy
		Carried over..	..	..	50	0½				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	50	0½				ground passed over, but no cultivation until near Gooja; cross the sandy bed of a river at 6*m.* 4*f.*, near the village of Goonda, with two good wells.
Sind.	Deputy Collector at Jerruk.	Tatta, East side	10	0	10	0	Tolerable but heavy road in the dry season, but after rain or during the inundation very difficult, from mud, and many nullas and canals, and confined in parts by jungle.	Abundant, from wells, but not very good.	Abundant	A large, open, manufacturing town, much decayed, about 3½*m.* in a direct line from the nearest point on the Indus, and on low ground. The best encamping ground is on some heights, 1½*m.* to the west, by which the route passes; but even this ground was found very unhealthy by our troops in 1839. Country level and jungly, with many watercourses. About 6*m.* from Gooja a large well of good water, near the village of Murkar.
		Commissariat Bunder..	3	2						
		Low-water Bunder....	2	6	6	0				
		Total..	..	..	66	0½				

NOTE.—Troops, and especially single travellers, can proceed by water from Kurachee to Garra, the voyage generally occupying five or six hours, except from December to March, when it may be calculated to last 24. The mouth of the creek is at the eastern extremity of a large bay, 9 miles ESE. from Munora Point. The entrance from the sea is winding, shallow, and much impeded by sandbanks, and impracticable during the monsoon, when boats ship and unload their cargoes at Ghisree, distant from Kurachee by land 6 miles. The creek is 300 *yds.* wide at its mouth, with a depth of 5 fathoms, gradually decreasing to 50 *yds.*, and a depth of 5 feet at high-water at Garra, about 25 miles up the stream.

ROUTE No. XX.

FROM LARKHANA TO DADUR, BY BHAG.

GENERAL DIRECTION, N. BY W.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Upper Sind.	Collector at Shikarpoor.	Kyree Deeroo	15	0	15	0	Tolerable road, through much jungle.	4 wells and pools in a canal, good in March.	Abundant; also forage.	A large village, with tolerable encamping ground close to it. At 6*m.* pass Futtipoor, a small village, with one well. At 9*m.* Damra, a small village, with two wells. Country level and jungly.
		Sujawul	12	0	12	0	Good and level road, but in parts cut up by watercourses.	Abundant, from 8 good wells.	Ditto	A large village; good encamping ground near it. Country open, with much cultivation, by means of irrigation, near villages. At 1*m.* pass Tulloo, with two wells. At 3*m.* 4*f.* pass Sheera and Sokra, 7 wells; and at 4*m.* Meeanee; all small villages. At 7*m.* Chandra, a large village, with shops, and 4 wells. At 10*m.* Owzee Boota, 2 wells; at 10*m.* 4*f.* Pungria; and at 11*m.* 4*f.* Bund, 1 well; all small villages.
		Taj Lugaree	11	0	11	0	Good road, over barren country, sometimes bushy.	2 large wells	Middling	A tolerable village, in a parched and desert country. At 1*m.* pass Soour But, a large village, with 3 wells. At 6*m.* Goolal Seea, a small village, with brackish water. Waste and bushy country.
		Kyree Gurhee.....	10	0	10	0		2 good wells	12 shops	A walled town, on the edge of the desert, on a stream which runs from the hills to the west. At 2*m.* pass Sunjeer, a large village, with two wells. At 6*m.* Neemra.
Kutchee.	Commr. of Sind.	Tumboo	18	0	18	0	Good road, over a hard and level desert, liable to inundation from sudden rain.	40 or 50 small wells, which require to be cleared and drawn for troops.	Moderate....	A small village. The country is level, and perfectly desert, and the village occasionally deserted in April and May, from a failure of water.
		Carried over..	..	..	66	0				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	66	0				
Kutchee.	Commissioner of Sind, or Officer Commanding on the Frontier at Kangur.	Kunda	15	0	15	0	Good road, over a hard and level desert, liable to inundation from sudden rain.	From pools in the Nara river, till the end of February, and then from pits in the bed.	Abundant; 30 shops; also forage for horses and camels.	A large walled village or town; encamping ground SW.; much cultivation, and many villages around; cross a nulla near Tumboo; and at $1\frac{1}{2}m$. pass Urzee, with several small wells.
		Kasim-ke-Joke	15	7	15	7	A foot-path, over cultivated country, hard and level.	Abundant, ditto ditto..	Abundant; also forage for horses and camels.	A large village; encamping ground SW. Cross 5 nullas in this stage, with the Nara river to the right; several small villages along the road.
		Bhag.....	20	6	20	6	Good and level road, through a cultivated country, but much cut up by nullas and canals, for irrigation.	Ditto ditto; and from tanks.	Abundant; 100 shops; also forage.	A town of 1,500 houses, with a ruinous wall, on the Nara river; encamping ground to the east. Cross 5 nullas on this stage, with the Nara river running to the right, as before, and numerous villages along the road.
		Meysurra, or Myshur..	14	6	14	6		Good, from a nulla SW. of village.	Moderate; 10 shops; forage abundant.	200 houses; encamping ground NE.; cross six nullas in this stage. Country as before.
		Nowshara, or Nowshuhra	15	3	15	3	Rugged and stony road, through a range of low hills.	Abundant, from canals ..	Abundant, fr. large bazars.	A walled town, surrounded by cultivation, and canals of running water from the hills. At $6m$. $3f$. cross a deep nulla, with some water.
		Dadur	8	0	8	0	Good and level, but intersected by water-cuts.	Ditto ditto	Ditto ditto; also forage.	A large town and fort, surrounded by gardens, on a branch of the Bolan river, which issues from the pass about 4 miles to the west. At $3m$. cross a branch of it, broad, and with steep banks.
		Total..	..	..	155	6				

ROUTE No. XXI.

FROM LARKHANA TO DADUR, BY GUNDAVA.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Sind.	Collector at Sukkur.	Larkhana to Kumbur ..	15	1½	15	1½	Tolerable road, but much cut up by ditches; when practicable, the best road is in the bed of the main stream or canal.	8 good pukka wells, on the east of the town.	Abundant; also forage.	A town, with a good bazar, and detachment of Sind Horse; good encamping ground. At 1*m.* 4*f.* pass Kodram, by a bridge over a stream. At 5*m.* 2*f.* Sundeelee, with a canal to the left; at 8*m.* 3*f.* Syud Ubbra, where the above canal is crossed. At 11*m.* 4½*f.* recross it to Mahomed Looral, a large village, with 3 pukka wells. At 12*m.* 4*f.* Eesa, a large village, with wells.
		Dost Ali	9	7½	9	7½	Good road, over a plain, with some jungle, and heavy sand in the first six miles.	3 good pukka wells, and 2 more at Lukkeejo Gurhee, 6*f.* N.	12 shops	A middling village, with much cultivation, and good encamping ground on an extensive, open plain; a detachment of Sind Horse here. At 2*m.* 3*f.* pass Lonara, a small village; and at 5*m.* 7*f.* Chucha, a large village. Country so far uncultivated and jungly; the rest of the stage cultivated.
		Bahram (or Bahram Khan Kokur-ka-Shuhr)	9	4	9	4	An excellent road, over hard and level country, chiefly desert.	Scanty (unless the rains have been ample), from one pukka well in the village, and four kucha wells, in a canal to the west.	Scanty	A middling village, with a fort in good repair, on the border of the "Put" or desert. At 2*m.* 3½*f.* pass the small villages of Jaffier Kulhora and Machee, with kucha wells. At 8*m.* the ruins Old Bahram. At 8*m.* 7½*f.* Shah Chandia, a fort and a few huts, with a well, and a fine grove of trees.
Kutch Gundava, or Kutchee.	Khan of Khelat, or Officer Commanding at Kangur.	Shadeehur, or Shadeegur	28	4	28	4	Excellent road, over level Put or desert, but not distinctly marked. The first 4*m.* bushy. Several canals in the last 1½ mile.	Numerous kucha wells, in the bed of a river.	Abundant ..	A large straggling village, on the southern extremity of the desert, surrounded by canals and cultivation. A large village, Keechee, 3*m.* to the left, with abundance of running water. The Put is liable to inundation from heavy rain; it is capable of cultivation, but from want of water is a barren waste.
		Carried over..	..	..	63	1				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	63	1				
Kutch Gundava, or Kutchee.	Khan of Khelat, or Officer Commanding on the Frontier, at Kangur.	Tooneea	9	7	9	7	Excellent road, over an open and level, but waste country.	2 pukka wells, one only in use, and pits in the dry bed of a river.	None; forage scarce.	A small Fakeer's village, with a fine grove of trees, in which the wells are situated. The mountains of the great Hala range are a short distance to the left on this stage and remain so to Dadur.
		Jhull, or Zull	9	2	9	2		Abundant and good, from numerous small canals, and running water.	Abundant; fr. a large bazar; also forage.	A walled town, with open suburbs, and some hamlets to the north, of the same name, with much cultivation around; good encamping ground north and south. Country from Shadeehur thinly scattered with peepul trees; cross 11 narrow and shallow canals, with bridges, within two miles of Jhull.
		Punjoke	13	0	13	0	Good road, over an extensive plain.	Abundant, from a canal; and 2 others 1½ mile N.	Abundant....	A large village and fort, and much cultivation. At 9*m.* 6*f.* cross the Huttiyar river, 300 *yds.* broad, south bank steep, passable for camels. Country level and waste, but bearing marks of former cultivation.
		Gundava	12	1	12	1		Abundant, from Karee river, and numerous canals.	Ditto	A large walled town, on the north bank of the Karee river, the chief place of the district; encamp south of the river. At 7*m.* 5*f.* pass Futtipoor, 5 villages, with a canal of good water. Kotree, a large town and fort, is 7*m.* SW. of Gundava, and 8*m.* from the mouth of the Moolla Pass, leading to Khelat.
		Shoorun	20	1	20	1	Narrow and bad, and intersected by many nullas and canals.	Numerous running streams from the hills close to the town.	Abundant; forage scarce.	Two forts within 6*f.* of each other, and several villages close by. Country cultivated for 5½*m.*, the remainder waste and jungly, and several large nullas crossed. At 5*m.* 3½*f.* pass Gajun, a large village and fort, with cultivation, and running water. At 13*m.* 4½*f.* Meetee, a small fort, and 2 villages; 2*f.* further, cross a river, broad and shallow, with a

Kutch Gundava, or Kutchee.	Khan of Khelat, or Officer Commanding on the Frontier, at Kangur.	Sunnee.....	23	0	23	0	Indifferent road, generally rugged and stony, skirting the hills on the left; the last 2*m.* very stony, like the bed of a river.	Abundant, from a fine stream.	Scanty; but procurable from Meysane, 3*m.* off.	small stream, the hills approach near the road at Shoorun. A fort and small village, about 2*m.* from the hills. At 4½*m.* cross some streams of water, and pass some tombs. At 7*m.* 1*f.* pass Bittowree, some small villages on the left, near the hills; after crossing low stony hills, a mile further, leave Ameen-o-Deen, a Peer's tomb, about 2*m.* to the left. At 16*m.* 5*f.* pass 5 kucha wells, with a good supply of water, by a grove of babool trees, close to the left of some low hills, the trees above mentioned continuing on the right.
		Nowshara.....	17	5½	17	5½	The first 5*m.* over a tolerably open road, then 4*m.* over a rugged and stony road; the remainder over level ground.	Abundant.....	Abundant....	Country on this stage a stony desert. A walled town, surrounded by cultivation, and canals of running water from the hills. At 5*m.* enter the Sunnee Pass, which lasts for 4*m.*, with numerous easy ascents and descents, stony, but not very rough, bare of vegetation, and affording indifferent cover; 1¼*m.* further cross a river with a stream of good water, and much grass, then 5*m.* of good road to Soobree. At 16*m.* 3½*f.* a large open village, with running water and cultivation.
		To Dadur. (Vide Route No. XX.).....	8	0	8	0				
		Total..	..	..	176	1½				

ROUTE No. XXII.

FROM SUKKUR TO DADUR, BY SHIKARPOOR AND BAGH.

GENERAL DIRECTION, NW. BY N.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Upper Sind.	Collector at Shikarpoor.	Sukkur Cantonment, to Lukkee	15	0	15	0	Good cart-road.	Plentiful, from wells	Plentiful; 10 shops.	200 houses; encamping ground good, right of village. At 3*m.* 7*f.* pass Abad, 30 huts, 1 shop, half mile left of road, water from 1 kucha well and a dund. At 4*m.* 4*f.* Nusseerabad, 35 huts, 1 shop, water from a dund. At 5*m.* Jafferabad, 40 huts, water abundant and good, from a large dund or lake; encamp between the village and the village of Soomra-ka-Gote. At 6*m.* 6*f.* Drea, 2*f.* left of road. 20 huts, water from dund. At 9*m.* Maboob, 120 huts, and 6 shops, water from wells. At 11*m.* Mungranee, left of road, 15 huts, water from a kucha well. At 12*m.* 4*f.* Soomur, 4*f.* right of road, 40 huts, and water from kucha wells. Supplies at all these villages.
		Shikarpoor	9	0	9	0		Abundant	Abundant ..	Large town and cantonment. At 5*m.* pass Jumera Kosha, 40 huts, 3 shops, water from kucha wells. At 6*m.* 4½*f.* cross Sind Canal. At 6*m.* 6*f.* Lukkee Thurr, 15 huts, water from kucha wells. Supplies plentiful at these villages.
		Jagun	12	2	12	2	Good and level, through thick jungle, with no nullas; soil light.	Some good built, and five kucha wells.	Scanty, but camel forage and kurbee abundant.	A small village and fort, with some high fortified buildings outside; encamping ground SE. Country quite level, and covered with jungle.

Upper Sind.	Collector at Shikarpoor.	Janeedera	11	5	11	5	Good, over a level and wooded country; cross four shallow nullas.	Four good built wells, one in the fort.	Ditto	A large fort and small village; encamping ground in fields to the east; very fine jowaree cultivation about the village; jungle less dense.
		Rojan	11	2	11	2	Good, over level country; soil light.	Abundant, from three built wells, but not very good.	Plentiful; also forage.	Two small walled villages on the frontier, and a post of Sind Horse; encamping ground SE.
Kutchee.	Comr. in Sind, or Officer Commanding the Frontier, at Kangur.	Burshoree	28	0	28	0	Hard and good, over a level desert.	Plentiful in the cold season, from numerous kucha wells; scanty in the hot season.	Moderate	A small village; from Rojan the country is perfectly level and barren, and generally devoid of water, but liable to be inundated to the depth of a foot or more, by heavy rain.
		Kasim-ke-Joke	15	4	15	4	Good, hard, and level road.	Abundant and good, from the Naree river.	Abundant	A large village; encamping ground SW. At 13*m.* pass Meerpoor, 4 shops, formerly a large village.
		Dadur. (Vide Route No. XX.).....	..	..	58	7				
		Total..	..	..	161	4				

NOTE.—A route leads from Kasim-ke-Joke to Shoorun, a large place 20 miles north of Gundava, under the mountains, as follows:—

	Kassim-ke-Joke to Nusseerabad	11	4	11	4	Good, over level country.	Moderate, from 3 or 4 kucha wells.	Scanty; 4 shops.	Formerly a large town, now partially deserted.
	Shoorun	12	4	12	4				Vide Route No. XXI.
	Total..	..	..	24	0				

ROUTE No. XXIII.

FROM SUKKUR TO DEYRA, IN THE BHOOGTEE HILLS, BY SHIKARPOOR AND SHAPOOR.

GENERAL DIRECTION, N. BY E.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Upper Sind.	Collector at Sukkur or Shikarpoor.	Sukkur to Janeedera. (Vide Route No. XXII.)	..	..	47	7				
		Kangur	4	4	4	4	Open, level, hard, and good; latterly quite bare.	Several wells of good water, and some brackish.	Procurable; also forage.	A small fort and village, the head quarters of the Sind Horse. The limit of irrigation from the Indus is passed in this march.
		Minotee	20	4	20	4		Good, but scanty, in numerous pits in a nulla to the south, and brackish from one built well in the fort.	Scanty; also firewood; horse and camel forage plentiful.	A small fort and village. Country quite level, and chiefly desert.
Kutchee.	The Officer Commanding the Frontier, at Kangur.	Shapoor	14	0	14	0	Open and level; latter part very heavy and sandy.	Good and plentiful, in pits in the bed of a river.	Moderate; but procurable fr. a distance.	An open town, on the north side of the sandhills bounding the desert; encamping ground very heavy and sandy, near the water pits in the river. The road so far has been to the west of north; from Shapoor it turns nearly ENE.
		Ooch	11	4	11	4	The three first and two last miles very heavy; the rest good.	From a running stream, slightly brackish.	None, but firewood, and coarse forage abundant.	Formerly a Jukranee village, but now deserted for some years, save by a Fakeer, who resides in a grove of trees, near a hot spring in the bed of a river.
Territory of the Bhoogtee Tribe.		Sooree Kooshta	20	7	20	7	Heavy & difficult, in many parts along the dry beds of sandy nullas, & across precipitous ravines.	From the bed of a hill stream, by digging from 13 to 15 feet.	Ditto	No village, but the place is occasionally frequented by Bhoogtee herdsmen with their cattle.
		Zurranee	10	0	10	0	Generally good	Ditto ditto, from 11 to 13 feet.	Ditto	As above.

Territory of the Bhoogtee Tribe.	The Officer Commanding the Frontier, at Kangur.	Zeen-ka-Koomb	7	0	7	0	Difficult. (Vide Remarks.)	From a cleft in the rock, 450 *yds.* to the east of Zeen-ka-Koomb.	Ditto	The road from Zurranee at first lies through the Lallee Pass, 1*m.* in length, after which it traverses a distance of 3*m.* to the main range of mountains forming the southern boundary of the Bhoogtee Hills, and then ascends gradually for 2*m.* to the Pass of Zeen-ka-Koomb, which is so steep and narrow that guns must be unlimbered, and drawn up by manual labour.
		Koombee	10	0	10	0	Good. (Vide Remarks.).	Abundant and good.....	Ditto	The road at first crosses a table-land, between 2 and 3*m.* broad, whence it gradually descends to Koombee, on the north side.
		Deyra	15	0	15	0	Six miles from Koombee enter the plain of Deyra.	Abundant, from canal from a spring in the gorge of the hills, about 2*m.* NE. of the town.	Moderate; but forage abundant.	The capital of the Bhoogtee tribe; a fort, 150 *yds.* square, walls 15 feet high, 18 thick at the base, but only one at top. Deyra was taken by a British force in January 1840. The gate on the SW. face was defended by a square tower and traverse, and was destroyed by Sir C. Napier in March 1845, but is said to have been since rebuilt. Deyra is in a fertile plain, running E. and W. for 30*m.*, with an average breadth of 4*m.*, 1,250 feet above the level of the sea, bounded on the north by a precipice, 1,500 feet high, forming a portion of Trukkee, the chief stronghold of the Bhoogtees. The stream can be turned by those who hold the pass whence the spring issues.
		Total..	..	..	161	2				

A distance of 37*m.* 2*f.* may be saved by following a more direct, but rarely-traversed route, between Shikarpoor and Sooree Kooshta, as follows:—

Upper Sind.	Collector at Shikarpoor.	From Sukkur to Shikarpoor. (Vide Route No. XXII.).....	..	..	24	0				
		Meerpoor	18	0	18	0	Ill-defined, and much broken by nullas, through a well-cultivated country.	Abundant and good	Abundant	A large open town, defended by small towers at the angles. At 11*m.* pass Zeerkhail, a considerable village, with supplies and water abundan. At 13*m.* 4*f.* Deea-ka-Gote, a small village, on the south bank of the Biggaree Canal, quite impassable during the inundation, at 14*m.* 4*f.* At 15*m.* 4*f.* Ahmedshah, a small village; supplies scanty; also water, except during the inundation.
		Carried over..	..	..	42	0				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Upper Sind.	Collector at Shikarpoor.	Brought over..	..	..	42	0				
		Hoossein-ke-Gurhee...	11	0	11	0	Very good	Scanty; but a good well has been ordered to be sunk.	None, but forage.	The old village deserted, but a new one of the same name recently built, about 2*m.* off, in the direction of Hoodoo. The country uncultivated, owing to its disturbed state, but with every prospect of being restored. At 8*m.* 4*f.* pass Goolamee, deserted, except occasionally by herdsmen, with scanty water and no supplies.
Kutchee.	Officer Comdg. the Frontier, at Kangur.	Hoodoo	17	0	17	0	Good; latterly through Peeloo jungle, and between low hills.	In the bed of a mountain stream, by digging 2½ feet.	None; but grass and firewood.	No village or inhabitants; the place is occasionally frequented by Bhoogtee herdsmen with their cattle, it being a favourite grazing ground.
Territory of the Bhoogtee Beloochees.		Sooree Kooshta	12	0	12	0	Good, over a shingly, undulating plain.	By digging 13 to 15 feet.	Ditto	No village or inhabitants; the place is occasionally frequented by Bhoogtee herdsmen.
		Deyra (see above)	..	..	42	0				
		Total..	..	..	124	0				
There is another route by Shikarpoor, Shapoor, and Poolajee, to Deyra, as follows :—										
		Poolajee. (Vide Route No. XXVI.)	..	..	107	5				
		Teyago (or Teywagh)..	10	0	10	0	Level, but sandy and heavy.	A stream of water	Forage procurable.	No village.
		Murrow Koostuk	14	0	14	0	Three steep and difficult Ghauts, at 6*m.*, 9*m.*, and 10*m.*	In pools	Grass, and camel forage.	
		Sungsa.....	15	0	15	0	Generally good, but occasionally over broken ground.	A stream running to the north.	Ditto	No village.
		Deyra	18	0	18	0	Good.			
		Total..	..	..	164	5				

Compiled from Dr. Kirk's Surveys.

ROUTE No. XXIV.

FROM SUKKUR TO FEROZEPOOR, BY SUBZULKOTE AND BHAWULPOOR.

GENERAL DIRECTION, NE. BY E.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Upper Sind.	Collector at Sukkur.	Sukkur Cantonment to Roree	1	6	1	6	.....	.....	.....	Across the river.
		Turree Chanee	7	4	7	4	Hard and good; some swampy ground near the road.	1 built well, and Indus river.	Abundant; 12 shops; also forage.	60 houses; encamping ground confined, on the Indus, close to N. and W.; better ground half a mile south. Pass the small villages of Alliwahan at 2*m.* 7*f.*, Janee at 4*m.* 5*f.*, and Kowrai-ke-Bustee at 5*m.* 6*f.* Country generally cultivated, with some jungle.
		Choonga	9	0	9	0	Narrow, but hard & good; cross one deep and five small canals.	Abundant, from four built wells, and a dund or pool 6*f.* distant.	Scanty, but procurable fr. the neighbourhood; also forage & firewood.	80 houses, on a branch of the Indus; good encamping ground NE. Pass the small villages of Kasimpoor at 1*m.* 1*f.*, Abdool Shah at 5*m.* 5*f.*, and Syud Khan at 7*m.* Country cultivation, and thin jungle mixed.
		Hajee Mullodee	9	3	9	3	Good, but winding; cross 4 canals.	Abundant and good, from three or four built wells.	Scanty, but procurable on notice; forage and wood abundant.	30 houses; encamping ground excellent. Pass the small villages of Kulloonda at 4*m.* 3*f.*, Bood at 5*m.* 7*f.*, Koraee at 6*m.* 3*f.*, and Wahan at 8*m.* 2*f.*, and other villages off the road. Country chiefly thin jungle, with some cultivation.
		Gotkee	10	3	10	3	Very good and broad, but winding.	Numerous built wells, of excellent water.	Abundant and cheap.	A large scattered village, with much cattle, and sugar cultivation; encamp among fields. Pass a few small villages off the road. Country as before.
	Pol. Agent at Khyrpoor.	Sirhud	8	0	8	0	Narrow, but good, through jungle.	Abundant and good, from built wells.	Scanty; but forage abundant.	20 houses; at 2*m.* 1*f.* pass Khain-ke-Bustee, 50 houses, some cultivation; then for the rest through thick jungle.
		Carried over..	..	..	46	0				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	46	0				
Upper Sind.	Political Agent at Khyrpoor.	Bagoodra	8	2	8	2	Good, but winding	Abundant, from 5 wells; a river about a mile to the west.	3 shops; but procurable on notice; also forage.	80 houses; encamping ground good, to the south. Country thick jungle, with patches of cultivation, particularly along the banks of a deep canal, half-way.
		Oobara	13	1	13	1	Good and direct	Abundant, from pools in the river, and by digging two or three feet.	Abundant; 30 shops.	A large walled village, in low ground near the bank of a river; encamping ground confined and low close to the village, but good 1½*m.* before reaching it. Pass the small villages of Mahomedpoor at 5*m.* 4*f.*, Showra at 11*m.*, Rajunpoor at 11*m.* 4*f.* Country well cultivated, with patches of thin jungle.
Bhawulpoor.	Assistant to the Governor Genl.'s Agent at Ferozepoor, or Assist. Commissioner at Mooltan.	Subzulkote	11	5	11	5	Good, but crossed by two deep canals.	Abundant, from built wells, and nullas.	Abundant and cheap; large bazar.	A small fortified town, and frontier post of the Bhawulpoor State, with a large garrison; encamping ground good, south, or east, or north. Pass the small villages of Maree at 2*m.* 7*f.*, Lal Khan at 4*m.* 1*f.*, and Kooshal at 8*m.* 1*f.*; much cultivation near villages, the rest high and thick jungle. The Oobara river runs nearly parallel to the road, some distance to the left.
		Ahmedpoor	13	5	13	5	Good, but heavy with sand.	Abundant, from wells....	Abundant; also forage.	A walled town, with a small square fort in good repair on the NE.; encamping ground rather confined to NE. or S. Pass the middling village of Adumpoor at 1*m.* 7*f.*, and the small villages of Aloo Throle at 2*m.* 4*f.*, Surwye at 5*m.* 5*f.*, Soonjurpoor at 6*m.*, Ghoolamka at 7*m.* 4*f.*, and Ranee Punjan-jo-Gote at 8*m.*
		Nowshara (Kulan)....	17	4	17	4	Narrow in parts, sandy, and intersected by numerous canals, crossed by fragile and temporary bridges.	Abundant, from built wells.	Abundant; also grain and forage.	A large village; encamping ground good, to the left, near a large granary, but a little broken by ditches. Pass the small villages of Ramchund at 2*m.* 2*f.*, Katee-ke-Bustee at 4*m.* 3*f.*, Punjaw alee at 14*m.* 1*f.*, and Nonawala at 16*m.* 5*f.* Country

Bhawulpoor.

Assistant to the Governor General's Agent at Ferozepoor, or Assistant Commissioner at Mooltan.

Summaboo or Summanabad.....	14	4	14	4		Plentiful	Ditto ditto; a large bazar.	A large village, with several large houses of burnt brick; encamping ground good, to the south. Pass Sooltanpoor, 4 shops, at 4*m.* 1*f.*, Tanda Ali Moorad, 8 shops, at 7*m.* 5*f.*, and Nowshara, a small village, at 11*m.* 1*f.*; cross a deep nulla by a brick bridge on leaving camp. Country thin jungle and fields. The road to Chachur & Mithenkote strikes off from Summaboo, twenty-four miles distant.
Khanpoor	17	3	17	3	Sandy, and intersected by several deep canals, 8 or 9 with water, bridged as before.	Good and abundant, from built wells, and a large canal.	Abundant, of all kinds.	A town, with suburbs of some 4,000 houses, on a navigable canal, with a decayed mud fort to the NW.; encamping ground very confined, owing to cultivation, and the number of canals with water, and damp ground. Pass Oonurjee Bustee, 50 houses, at 5*m.* 3*f.*; Saee-ke-Bustee, 100 houses, at 6*m.* 3*f.*; Alumshahjee Khoo, 20 houses, at 6*m.* 7*f.*, and Mahomedpoor, 75 houses, at 9*m.* 5*f.* Country at first cultivated, with thin jungle, latterly more jungly.
Mahmoodee Kundee, or Mamoo-ka-Kanda ..	16	2	16	2	As before, but not so many canals, and the bridges mostly built of brick.	Ditto ditto	None; and forage scarce.	A few huts; encamping ground good, to NW., and particularly fine ground about the 13th mile. At 2*m.* 2*f.* pass Dato Folo, 100 houses, 4 shops. Country, at first a thick reedy and tamarisk jungle, about the 10th mile becomes open, low, rather swampy, and highly cultivated.
Chowdaree	11	5	11	5	Good, but narrow, chiefly through fields.	Ditto ditto; and a dund half a mile NE.	Ditto	A few huts, on sandhills, in a fine, level, open, and extensive plain, covered with grass, to the N. Pass the small villages of Joonda at 5*m.* 5*f.*, Noorlad at 6*m.* 7*f.*, and Nanoree at 8*m.* 2*f.*; the first 7 or 8*m.* through wheat-fields, when cultivation ceases; some low sandhills about the 9th mile. A good road branches off from Chowdaree to Ooch, distant 26*m.*, viz: Baree..... 8*m.* Myan Nubbee..... 8*m.* Goga Shah Bohar, or Ooch.. 10*m.* Total..26*m.*
Carried over..	..	..	169	7				

covered with thin jungle, sterile, and deserted, with sandhills near.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	169	7				
Bhawulpoor.	Assistant to the Governor General's Agent at Ferozepoor, or Assistant Commissioner at Mooltan.	Chanee Khan-ka-Gote.	11	2	11	2	Good; cross 2 nullas with water, at 7½ and 8*m*.	Plentiful, from built wells, and a tank.	Abundant....	A large scattered village; pass through it, and encamp on a sandy plain to the west. At 7*m*. pass Dingee Chachur, 20 houses. Country for a mile an open plain, then low jungle. A good road from Chanee Khan to Ooch, distant 9*m*.
		Ahmedpoor.....	15	4	15	4	Bad, through close tamarisk jungle, with clumps of earth and bushes; in parts narrow, in others sandy, and latterly very winding.	Abundant, from wells....	Abundant, of all kinds.	A large town, and fort, in bad repair, surrounded by gardens and fields. A strong garrison is kept here, and a depôt of guns and ordnance stores; encamping ground confined, to the west. At 7*m*. 2*f*. pass Syud-jo-Gote, 2*f*. to right; and at 12*m*. 7*f*. Mahomed Khan, 10 houses. Country jungly, latterly partially cultivated. The town of Ooch is distant 18*m*. to the west of Ahmedpoor.
		Hoossein Bhaee	8	7	8	7	Good, over an open country.	Abundant, but not very good.	Scanty	A small village, with excellent encamping ground on a sandy plain. Country partly covered with thick jungle; the rest open.
		Khyrpoor	9	1	9	1	Bad, in some parts narrow, and interseeted by canals.	Ditto ditto	Scanty	A small village off the road; encamping ground some distance from it, good.
		Bhawulpoor.....	13	2	13	2	Very bad, winding, and heavy for guns; cross several canals, badly bridged.	Abundant.....	Abundant, of all kinds.	A large walled town, the capital of Bhawul Khan's territory, surrounded by fields, and by orchards of orange, mulberry, &c.; encamp west of the town, on spacious open ground. Country partially cultivated.
		Bakree-ka-Dera	13	4	13	4	Broken and obstructed, & difficult for carts; cross seven canals.	Excellent and abundant, from built wells.	Scanty	A small village. Country partially cultivated, and studded with half-deserted villages.
		Noor Mahomed	12	0	12	0	Good, but heavy; cross several canals.	Good and abundant	Moderate; grass abundant.	A large village, in a date grove. At 2*m*. pass Shahpoor; about 4*m*. cross a deep nulla; at about 7*m*. a large village, near a range of low sandhills; then through a dense reedy jungle; and from the 9th mile a fertile and cultivated country.

Khyrpoor	12	3	12	3		Ditto ditto	Abundant; a good bazar.	A small town and a fort, in good repair, with several mosques; encamp in fields half a mile south. A range of low sand-hills on the SE. face of the town. The first two miles is through scattered date trees; thence through fields and scattered houses; a mile south of the town is a large fortified granary.
Kaim Kazee	13	3	13	3	Rugged and obscure, with numerous diverging paths.	Abundant, from built wells.	Moderate	A large village and fort, but partly deserted. Pass the small villages of Saman at about 3*m.*; Kiranee at 3*m.* 4*f.*; Bootakee Ahmedpoor at 5*m.*; Bowan at 5*m.* 4*f.*; Dolpoor at 7*m.* 2*f.*; Mungranee at 8*m.* 2*f.*, where there is a deep nulla. About 11*m.* the large village and fort of Lowtan; thence over a level open plain to Kaim Kazee.
Hasilpoor	10	3	10	3	Heavy and sandy	Plentiful	Plentiful	A middling-sized village. The first 4*m.* through a desert sterile country, covered with sand-drift; then low jungle and patches of dry reeds and grass, with a few fields; the Sutledge is about 10*m.* distant.
Bhadeera	11	1	11	1	Level and good, through jungle.	Good and plentiful	Plentiful	A small village; encamp in a hard level plain, surrounded by fields. At 8*m.* 4*f.* pass some houses, and at 9*m.* Hubbub Khan; a Peer's tomb visible some distance off, surrounded by some thousand graves. There are several small villages called Bhadeera; of these Lundi Bhadeera is the best to halt at.
Mata Shedoo	14	0	14	0	Good, over a level open plain; nullas at the 2nd and 4th miles.	Good and abundant	Scanty	A small half-deserted village, six miles from the Sutledge; encamping ground north. Pass several villages, surrounded by fine fields; the sandhills have disappeared.
Kassimke	13	7	13	7	Good; cross two deep nullas.	Abundant	Abundant, . . .	A middling-sized village, about 2*m.* from the Sutledge. At about 12*m.* pass a large village to the left. The first eight miles through jungle of tamarisk and camel-thorn, the rest a level plain, with occasional fields.
Mukdoom-ke-Bustee. .	13	4	13	4	Good, but crossed by many canals, badly bridged.	Ditto	Abundant, . . .	A large village, near Mameeke; pass several villages on or near the road. The first five miles through jungle, thence partial cultivation, and from the 6th mile low and swampy to the left.
Carried over, .	..	..	342	0				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	342	0				
Bhawulpoor.	Assistant to the Governor General's Agent at Ferozepoor, or Assistant Commissioner at Mooltan.	Chukkoke	13	4	13	4	Good, but crossed by many canals, badly bridged.	Abundant and excellent, from built wells.	Abundant, of all kinds.	A large and populous village, about 3*m.* from the Sutledge. The first 2*m.* along a high, steep bank, forming the inundation boundary of the river; then for 5*m.* over a white, sandy plain; thence over a fertile and highly cultivated plain. At 10*m.* cross some swampy ground; thence for 2*m.* over a sandy plain, to the large village of Lallake.
		Ramooke.....	13	0	13	0	Good; cross seven canals; latterly narrow.	Ditto ditto	Abundant....	A small village, about 5*m.* from the river, surrounded by fields. Pass for 1½*m.* through cultivation; then 4*m.* over an open barren plain to Bhawulgur, a mud fort, and large cantonment of troops. About 7½*m.* the road divides; take the left path, and pass several villages.
		Tawakul	10	2	10	2	Good; one canal.....	Abundant and excellent, from built wells.	Scarce	A small village. Country a high tamarisk and babool jungle.
		Lukkee	11	6	11	6	Good	Ditto ditto	Scarce	A good-sized village. Country jungly, with occasional patches of cultivation. At about 9*m.* the villages of Sarawa, marking the boundary.
Protected Sikh States.		Baluk Bodlake, or Luskurree Bhyar	17	0	17	0	Good; the last seven miles excellent.	Ditto ditto	Scarce	A large village. At about 2*m.* pass a village; at 4*m.* the village of Aichar Bara, near which are the remains of a brick fort; at 10*m.* the large new village of Bangala, and a Collector's bungalow, and strong mud fort.
		Bageke	10	6	10	6	Good and level	Ditto ditto	Scarce	A large village, on the left bank of the Sutledge. Country open, with fields, and numerous villages.
		Mohunke.....	12	4	12	4	First five miles narrow, rugged, and sandy; then level and open.	Ditto ditto	Scarce	A middling-sized village. Pass several villages to the left, along the bank of the river; pass through the village of Umbeer at about 4½*m.*, and Arreer about 9*m.* Country open and level.

British Protected Sikh Territory.	Governor General's Agent at Ferozepoor.	Mundote (Chota)	12	3	12	3	Ditto ditto	Ditto ditto	Scarce	A large town, on the Sutledge; Burra Mundote about 3*m.* off, in a grove of trees. Country for 5*m.* sandy and broken, with reedy jungle. At about 5*m.* 4*f.* pass Lukkoo; the last 6 or 7*m.* through an open, cultivated country.
		Ferozepoor	14	0	14	0	Ditto ditto	Ditto ditto	Scarce	A town, fort, and British Cantonment, on the Sutledge.
		Total..	..	..	457	1				

NOTE.—From Roree to Khanpoor, 140*m.*, the Indus is 15*m.* to 25*m.* to the left. At Khanpoor a road leads to Mithenkote. From Khanpoor to Bhawulpoor the route gradually approaches the Sutledge, and thence continues, generally within 5*m.* of its banks, to Ferozepoor. The bridges across the numerous canals which intersect this route are, with a few exceptions, temporary wooden erections, only fit, unless previously put in order, for the passage of infantry.

ROUTE No. XXV.

FROM SUKKUR TO IMAMGUR, VIA DEEJEE-KA-KOTE.

GENERAL DIRECTION, SE.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Upper Sind.	Resident at Khyrpoor.	Sukkur to Roree.....	1	6	1	6	.....	.....	.....	Across the Indus.
		Nusseer Khan-ka-Kote.	8	1	8	1	Good road, except 6*f.* over sandhills, heavy for guns; latterly cross several nullas.	Abundant and good, from numerous wells.	Abundant....	A small fort, under the walls of which is the village of Mungree, surrounded by a ditch. At 2*m.* 2*f.* the village of Puttree, then 6*f.* of sandhills; thin jungle country round Nusseer Khan-ka-Kote, well cultivated.
		Khanpoor	11	4	11	4	Excellent.....	10 wells	Ditto	A large village. Pass some salt-pits to Kungree at 8*m.* 6*f.* Country so far cultivated; remainder a barren plain.
		Carried over..	..	..	21	3				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	21	3				
Upper Sind.	Resident at Khyrpoor.	Deejee-ka-Kote	10	7	10	7	Good	Abundant	Abundant ..	A fort on a hill, but commanded by another hill. Country highly cultivated, and soil rich.
		Choonka	22	0	22	0	Difficult, over and among sandhills.	Scanty, from one well of excellent water, and by digging in the dry bed of the Nara river.	No grain or forage, except for camels.	A small village. At 2*m.* leave the plain, and enter the low range of hills that run from Roree, after which a succession of sandhills, heavy and difficult for guns. At 17*m.* cross the dry bed of the Nara, which fills in the hot season, during the inundation of the Indus. Country quite uncultivated.
		Doombee	9	0	9	0	Very heavy for guns in some places, over the sandhills, but good in the hollows.	Abundant, from pool in the bed of the river.	None	A small village. About 3*m.* from Choonka pass the village of Sora, about half a mile to the right; no cultivation. Country consists of sandhills, with intervening plains, covered with large timber.
		Nara River	11	0	11	0	Generally through heavy sand, and over sandhills.	From two pools, and by digging about six feet in the bed of the river.	None	At 9*m.* pass Tujjul, one well, no supplies, no cultivation; in some of the hollows there is no sand, but fine clay, with large jungle timber.
		Luk	12	0	12	0	Heavy sandhills for 8*m.*: thence flat for a mile and a half.	By digging 16 feet.....	None	Country uncultivated; no supplies procurable in the neighbourhood.
		Meeree	11	0	11	0	Over a succession of steep and difficult sandhills.	One well of good water, which soon fills after being drawn.	None	3 herdsmen's huts. Country and supplies as above. The guns had to be dragged over many of the sandhills by hand.
		Padree	8	0	8	0	Generally as above, but good in two small plains, at the 5th and 7th miles.	Scanty and brackish, from one well.	None	A few huts. Country and supplies as before; jungle timber in the clay hollows.
		Imamgur	6	6	6	6	Bad, over sandhills.....	Abundant, from one good well inside, and two tolerable wells outside the walls; also a good well a mile and a half SW., and a mile and a quarter E.	None	A fort of burnt brick, destroyed by Sir Charles Napier in January 1843. Country as before; a plain to the south of the fort, producing much salt, with a grove of trees on it; all the water in the vicinity is salt.
		Total..	..	..	112	0				

NOTE.—This route, from Deejee-ka-Kote, was traversed by a detachment of Her Majesty's 22nd Foot on camels, some Sappers, a Camel Battery, and squadron of Sind Horse, under the personal command of Sir Charles Napier, in January 1843.

ROUTE No. XXVI.

FROM SUKKUR TO KAHUN, VIA SHIKARPOOR AND POOLAJEE.

GENERAL DIRECTION, N.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Kyheree Tribe of Beloochees.	Commanding Officer of the Frontier, at Kangur.	Sukkur to Shapoor. (Vide Route No. XXIII.).....	..	..	86	7				
		Chutta or Chutr.....	11	4	11	4	First seven miles mostly sandy and heavy, over a grassy plain; the rest good and hard, over cultivation.	Good and abundant, from 11 wells, very small, 80 feet deep, and difficult to draw.	Abundant; also horse forage.	A large village, with a dilapidated wall and towers. At 6*m.* cross the Teywagh river, which has always water by digging a few feet.
		Poolajee	9	2	9	2	Good and hard, but narrow; the first four miles through cultivation; the rest through thick jungle of thorn, peeloo, and tamarisk.	Good and plentiful, in wells 90 feet deep.	Plentiful; also forage.	A large village, with a dilapidated wall, surrounded by rich cultivation, about 5*m.* from the hills. At 4*m.* pass Thar-ka-Gote, a small village, with water and forage plentiful from Shapoor; the villages are inhabited by Kyherees, whose tribe was expelled from this part of Kutchee by the Doomkees and Jukranees, who were in their turn ejected by the British in 1844.
Bhoogtee Tribe of Beloochees.		Gogree Valley.....	14	0	14	0	Road level, but sandy in parts; generally good.	Good and abundant	None; but grass and camel forage abundant.	No village; encamping ground in the NE. extremity of a valley, under a low range of hills, in which sulphur abounds (thermometer in August 103°). At 3*m.* from Poolajee enter the hills, and at 6*m.* cross the Teywagh river; water and camel forage abundant. Thence pass through the 5*m.* valley, and, leaving the lower Deyra road to the right, enter an open valley called Gogree, 1½*m.* long by 6*f.* broad, bounded on all sides by precipitous sandstone cliffs.
		Carried over..	..	..	121	5				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	121	5				
Bhoogtee Tribe of Beloochees.	Commanding Officer of the Frontier, at Kangur.	Murrawur Valley	8	0	8	0	Very confined, along the bed of a river, in a narrow ravine.	Good and abundant	None; but grass and camel forage abundant.	No village; an irregular plain. The road is closed in by lofty, perpendicular sandstone cliffs. At 5*m.* pass an opening, by which a road leads to Deyra (thermometer in August 104°).
		Sooree Valley	11	0	11	0	Through a succession of ravines and valley.	About one day's water for the force was found in a pool at the foot of a rock near the camp.	Grass and camel forage abundant.	No village; a hollow about a mile in diameter (thermometer 105°). Pass for 1½*m.* up the Murrawur plain, afterwards through another narrow pass, amongst low hills, into the valley where Captain Brown halted in May 1840; thence along the valley for 1½*m.*; then strike off from the river (which flows from the E.) NE. 2½*m.* among low hills, to Sooree.
		Chikurgee Valley	9	0	9	0	Very difficult for guns, through narrow ravines, and over steep passes.	Abundant, from a fine stream.	Ditto	A green valley, shut in by low hills; a fine mountain stream with fish runs through it, edged by tamarisk jungle and grass. Pass through a narrow ravine to the NE. for 4*m.*, perpendicular sandstone rocks on each side; then ascend a small but steep hill to the south, up which the guns were dragged by the Sepoys; then cross an elevated hilly track for 1½*m.* to the SE., and descend by a steep dip, down which the guns were lowered by ropes; then through a narrow valley for 1½*m.*, and down a slight descent into the Valley of Chikurgee.
		Surtof Range (foot of)..	9	0	9	0	Bad. (See Remarks)....	Several extensive pools of good water, in a small jungle of tamarisk and oleanders.	Camel forage abundant.	Pass 2*m.* through the Chikurgee Valley, parallel with the river, to where the routes from Poolajee to Deyra and Kahun separate, the Deyra route following the course of the river to the eastward into the Deyra Plain. The road then ascends to the northward, to a slightly elevated stony plain, for 3½*m.* to the

Territory of the Murree Beloochees.	Commanding Officer of the Frontier, at Kangur.	Nuffoosk Range (foot of)	9	0	9	0	Very difficult for guns. (See Remarks).	A small supply at the bottom of a fissure in the mountain, near a clump of trees, soon exhausted.	.....	At 1*m.* ascend the Surtof Range, about 1,500 feet high, at an angle of 25°; the ascent about a mile. The face of the mountain, which is traversed by several perpendicular fissures from summit to base, forms a regular slope, up which the road winds; the guns were dragged up by manual labour, and the force took 14 hours of hard work to ascend. No water on the summit, from whence proceed ENE., over a level country, passing a dry tank, and some wheat cultivation; the ground latterly much cut up by nullas, and a shallow ravine.
		Kahun	6	0	6	0	Ditto ditto	Abundant, from pools in the bed of a river.	Abundant.	A walled town, capital of the Murree Beloochees, celebrated for its defence by Captain (Major) Brown in 1840, in a fertile valley, 2,000 feet above the sea level; much wheat cultivation; thermometer 24° in December, and ice 1¼ inch thick. From the last ground ascend the Nuffoosk Pass, 1*m.* to the summit. The range is about 1,000 feet high, but much more precipitous than that of Surtof, only accessible at one point, where a rough road has been formed by traverses at a spot rendered practicable by a slip of the rock. Afer several days' labour Lieutenant (Major) John Jacob was enabled to bring his guns down, in the early part of 1840. Major L. Brown's guns had to be lowered by manual labour.
		Total..	..	..	173	5				

north-east, very trying for camels' feet, and becomes worse on entering a range of low hills for two miles; it then descends into the dry pebbly bed of a mountain stream, which is crossed to camp, a level spot at the foot of the Surtof Range, which is said to be the frontier between the Bhoogtee and Murree Beloochees.

NOTE.—From Poolajee compiled from the Survey and Journal of R. Kirk, Esq., Surgeon of the 1st Grenadier Regiment, who accompanied the detachment under Major Clibborn, sent to the relief of Kahun in August 1840. There is a more circuitous route from Poolajee, *viâ* Lehree, as follows, taken chiefly from the surveys of the same Officer:—

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		To Poolajee, as above..	..	..	107	5				
		Lehree	14	4	14	4	Good, hard, & level; about three miles through cultivation, afterwards desert; cross several nullas.	Abundant, from many kucha wells, but rather brackish from bed of river.	Abundant and good; 100 shops.	A large walled town, surrounded by cultivation, about 5*m*. Pass Noorpoor about 1*m*. to the right of the road.
		Surwood Valley	13	4	13	4	Good, except a short, steep, & narrow descent into Surwood.	Good	Grass plentiful.	No village; a small circular plain.
		Tratanee Valley	11	0	11	0	Good, but shingly in places, and frequently crossing a river.	Abundant, from river, about 1 foot deep.	Grass and camel forage abundant.	No village; a fine grazing plain.
		Mihee Valley.....	11	0	11	0		Abundant	Ditto	No village; a small plain.
		Dahoo Valley	16	0	16	0	Very bad for camels, over stony desert; descent into Dahoo by a difficult and steep Ghaut.	Scanty	Ditto	No village.
		Kahun	16	0	16	0				
		Total..	..	..	189	5				

ROUTE No. XXVII.

FROM SUKKUR TO KOTREE (GUNDAVA), BY SHIKARPOOR AND KUNDA.

GENERAL DIRECTION, WNW.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Kutchee.	Collector at Shikarpoor.	Sukkur to Burshoree. (Vide Route No. XXII.)	..	..	87	1				
		Kunda	9	2	9	2	Good and level; 1½*m.* from Burshoree enter desert; last 2½*m.* through cultivation.	Abundant, from pools in the Nara river, till the end of February, then by digging.	Abundant, fr. 30 shops; also forage.	A large walled village, on the Nara river; encamping ground SW. Much cultivation and many villages around.
		Oodanee	10	5	10	5	Good and level, but jungly.	Moderate, from kucha wells, outside the walls.	Moderate; 5 shops; forage abundant.	A good-sized walled village, with much cultivation outside. Pass the ruins of old Oodanee, with some wells and some villages to the right at 3*m.* 4*f.*, and village on the left at 7*m.* 4*f.*
		Gundava	14	7	14	7	Good, over a level desert plain.	Abundant, from Karee river, and numerous canals.	Abundant....	A large walled town, on the north bank of the Karee river, the chief place of the district; encamp south of the river. Cross a canal at 9*m.*, 20 *yds.* broad, 15 feet deep, with steep banks; cultivation ceases at 1*m.*
		Kotree	7	0	7	0	Ditto ditto	Abundant.....	Ditto	Four villages and a fort, near the entrance of the Moola Pass (leading to Khelat) which commences at Peer Chutta, 8*m.* off.
		Total..	..	..	128	7				

A route leads from Oodanee to Shoorun, a large place, 20 miles north of Gundava, under the mountains (see Route No. XXI.), as follows:—

		Oodanee to Shiak	15	0	15	0	Good level road	None nearer than Shoorun.	None	Nearly deserted.
		Shoorun	8	0	8	0	.....	.....	.....	Vide Route No. XXI.
		Total..	..	..	23	0				

ROUTE No. XXVIII.

FROM SUKKUR TO RAMNUGGUR, ON THE CHENAB RIVER, BY MOOLTAN AND JHUNG.

GENERAL DIRECTION, NE.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		From Cantonment at Sukkur to Ahmedpoor. (Vide Route No. XXIV)	..	..	196	5				
Bhawulpoor.		Mulkanee Bustee.....	7	6	7	6	Narrow and heavy for three miles, then good.	Abundant, from three wells.	Scanty; but forage abundant by purchase, and digging.	A small village; encamping ground very good, NE. Pass a few huts and a small hill at 5*m*. 4*f*. Country thick jungle.
British Territory of the Punjaub.	Deputy Commissioner at Mooltan.	Poladpoor, or Phyladpoor.....	16	4½	16	4½	Heavy and dusty.....	Abundant, from wells..	Scanty; also forage.	A small village; encamping ground good. Pass the small villages of Jummalee Burda at 5½*f*.; Deeloo Arabee at 3*m*. 1*f*.; Bakurshah, 4 shops, at 5*m*. 6½*f*.; Hutteejee at 7*m*. 6*f*.; Gulee-ke-Bhawulpoor at 10*m*. 1*f*.; and Jhangra, 20 shops, at 10*m*. 7½*f*., with several others near the road. At 15*m*. 4½*f*. the right or N. bank of the Ghara, or Sutledge river; bed 1*m*. 3*f*. broad, heavy sand; stream in December 180 *yds*., under N. bank; crossed by boats; encamping ground on left bank, low and damp.
		Julalpoor.....	5	2½	5	2	Heavy and dusty, through jungle.	Ditto ditto	Abundant; a large bazar.	A large village; encamping ground good. At 2*m*. 3*f*. pass Sooruj Koond, 4 wells, 15 shops.
		Gowa.....	11	6½	11	6½		Good and plentiful, from 6 wells.	15 shops; forage scanty.	50 houses; encamp SW., on open ground. At 8*m*. 6*f*. pass Janoo-ke-Bustee, 5 wells and 5 shops, and some small villages near the road. Country partially cultivated, with jungle; cross a large canal 2*m*. south of Gowa.

Commissioner at Lahore, or Local Agents in the Provinces.	Deputy Commissioner at Mooltan.	Shoojaabad	16	1	16	1	Rather heavy, with many nullas; very heavy near Shoojaabad.	Good and abundant, from wells.	Abundant; a large bazar; forage scarce.	A large, strongly fortified town; encamping ground tolerable; indifferent to the west, cut up by nullas. At 4*m.* 3*f.* pass Kara, 40 houses, 8 shops; at 8*m.* 4½*f.* Jitalee, 20 houses; at 11*m.* 0½*f.* Hoossein Khan-ka-Kote, 200 houses, 12 shops, and some small hamlets near the road. Country cultivation and jungle; cross two large canals.
		Adhwala Bagh, or Adee Bagh	12	0	12	0	Good, but rather heavy; cross a large canal one mile from Shoojaabad.	Abundant, from wells....	8 shops.....	35 houses; encamping ground dry and good, but jungly. At 4*m.* 5½*f.* pass Chuk, 50 houses, 5 shops, and at 7*m.* Sikunderabad, a large fort, about a mile to the right. Country cultivated, with jungle the last two miles.
		Mooltan	13	0	13	0	Bad, through jungle	Ditto ditto	Abundant; also forage.	A large town and fort; encamping ground good, but cut up by nullas.
		Gagra	10	5	10	5	Hard and level.....	Good, from one well	Moderate	A middling village; encamping ground very good, 1*m.* SE.
		Ameergur	10	4	10	4	Level and good, but partly through jungle.	Good and plentiful, from two wells.	Abundant...	A middling-sized walled village; encamping ground good, SE.
		Sirdarpoor	10	5	10	5	Good, but through jungle.	Abundant, from several wells.	Abundant; also forage.	A large walled village, with small fort to the north; encamping ground good, SE.; pass Mahsham, a walled village, and a large fortified mosque, called Khulluk Ali-ka-Musjid.
		Ravee River (right bank)	5	5	5	5	Good	Abundant, from the river.	Forage abundant.	Near the junction with the Chenab, fordable; waist-deep on 4th February, near where a bridge of boats was made for the troops; the bank, being very deep in mud and sand, was covered with fascines; encamping ground very good, on grassy turf. The river runs slowly, and winds much. At 2*m.* 1½*f.* pass the village of Fuzl Shah.
		Jullalpoor	12	3	12	3	Indifferent	Abundant, from wells. ..	A good bazar.	100 houses; encamping ground good, but low, to south. At 1*m.* 2*f.* pass Dunyal, 3 shops, on the Ravee; at 1*m.* 6*f.* Syud Fakeer-ke-Bustee, 40 houses, 7 shops; at 5*m.* 7*f.* Kutch Gote, 130 houses, and a large bazar; at 10*m.* 2*f.* Kumlaira, 50 houses, 10 shops. Country highly cultivated.
		Carried over..	..	..	328	7½				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
British Territory of the Punjaub.	Commissioner at Lahore, or Local Agents in the Provinces.	Brought over..	..	..	328	7½				
		Shorkote	10	1	10	1	Good	Abundant, from wells....	A good bazar.	A large town, on a mound, with the ruins of a fort on another close by; encamping ground good, about three quarters of a mile SW. Country cultivated and pasture land. At 9*m.* pass Puthan-ka-Kote, 25 houses, and a small fort.
		Kaim	10	5	10	5	Good, through jungle....	2 wells	20 shops; also forage.	100 houses, 2*f.* to right of road; encamping ground jungly and broken, SE., with small hillocks. At 6*m.* 5½*f.* pass Meer-ka-Shurh, 100 houses, 12 shops. Occasional cultivation and much jungle, with some desert ground to the right.
		Moolwana.....	14	1	14	1	Good, but generally through patches of jungle.	Good and abundant, from several wells.	Scanty; 6 shops.	30 houses; encamping ground good, SW. At 4*m.* 7*f.* pass Mahomed Fakeer-ke-Jundee, 1 well; at 8*m.* 0½*f.* Huwelee, 150 houses, 40 shops; at 10*m.* Chuk Khana, a few huts. Country jungly, with occasional cultivation.
		Jhung	12	2	12	2	Confined, but good.....	Ditto ditto	Abundant, of all kinds.	A populous walled town, with a fort to the north; encamping ground very good, to west. At 4*m.* 1*f.* pass a well; at 10*m.* 1*f.* Nugana or Meganee, a large manufacturing village; at 11*m.* Athwallee, a fort half a mile to left. Country open and waste, except near towers.
		Khewa.....	13	2	13	2	Good, through thin jungle.	Ditto ditto	16 shops	100 houses; encamping ground good. At 7*m.* pass Nowee Baloo, a few huts. Country generally waste, with occasional fields and wells.
		Bhowanee	14	0	14	0		Ditto ditto'	Scanty; 10 shops.	125 houses, and a small fort; encamping ground good; the Chenab river about 4*m.* off. Country open, with thin jungle, and occasional fields and wells.
		Bookaree	14	0	14	0	Excellent	Good and plentiful, from numerous wells.	10 shops; scanty.	A walled village, of 100 houses; excellent encamping ground west. Pass Burkhoor-

Chunniote	9	1	9	1	Excellent	Ditto ditto	Usually abundant.	dar, 30 houses, at 3*m.* 6½*f.*; Khooruk, 80 houses, 12 shops, at 5*m.* 6½*f.*; Meemandee, 80 houses, 6 shops, at 6*m.* 5½*f.*; Taza-ke-Gote, 18 houses, at 9*m.* 0½*f.*; Sarnal, or Samul, 100 houses, 12 shops, at 9*m.* 6*f.* Country open, with cultivation and wells to the W., desert to the E.; river 1½*m.* to NW.
								A large town and fort, on the Chenab river, but deserted on the advance of the troops in February 1849; a rock about 350 feet high to the north; good encamping ground, but sandy. At 1*m.* 6*f.* pass Syud-ke-Bustee, a few houses; at 2*m.* 5*f.* Russeeda-ke-Bustee, 100 houses, 10 shops; at 6*m.* 1*f.* Matay, 15 houses; the Chenab river close to the left, between the two last villages. Country open, with fields and wells.
Sheik Kameer	10	3½	10	3½	Good, mostly through open jungle.	Ditto ditto	Moderate; 11 shops.	140 houses; encamping ground very good, on sandy ground to the west. Pass the small villages of Salaray at 2*m.* 6*f.*, Seepra at 4*m.* 5½*f.*, Meeanee at 5*m.* 7½*f.*, Mooradwala at 6*m.* 4½*f.*, Muttee at 7*m.* 3½*f.*, and Pootrakee at 8*m.* 6½*f.*; the river near to the left in the last 3*m.* Country thin jungle, with fields near villages.
Pindee Buttian	11	6½	11	6½	Ditto ditto	Ditto ditto	Abundant, fr. a large bazar.	A town and small fort; encamping ground very good, on sandy ground to W. Pass the small villages of Sawunka at 1*m.* 3½*f.*, Oomeer Shah at 2*m.*, Peer-ka-Kote at 3*m.* 2½*f.*, Shah Bilawul and Burdlee at 6*m.*, and Jogee Jam at 9*m.* 5*f.* Country as above.
Jullalpoor	13	3½	13	3½	Excellent and open	Ditto ditto	Ditto	A large walled town and small fort; encamping ground very good, to the N. Pass several hamlets. Country an open plain, with much cultivation.
Wanecekee	16	7	16	7	Ditto	Ditto ditto	Ditto	A large walled village; encamping ground very good, half mile SE. Pass six small villages. Country open, and highly cultivated.
Carried over..	..	..	479	0				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
British Territory of the Punjaub.	Comr. at Lahore, or Local Agents in the Provinces.	Brought over..	..	..	479	0				
		Ramnuggur.....	13	5	13	5	Excellent and open.....	Good and plentiful, from numerous wells, and a tank near the encamping ground.	Abundant, fr. a large bazar.	A large town, near the left bank of the Chenab; encamping ground good and dry. Pass 6 small villages, and at 8*m.* 5*f.* Hurraira Kote, a large place, with 20 shops. Country as above. The Chenab was crossed by the Bombay troops by a bridge of boats, 3*m.* from Ramnuggur, on the 19th February 1849, *en route* to Goojerat, 28*m.* distant.
		Total..	..	..	492	5				

ROUTE No. XXIX.

FROM TATTA TO DEESA, BY BUDDEENA, RAOMA-KA-BAZAR, AND NUGGUR PARKUR.

GENERAL DIRECTION, E. ¼ S.—SEASON, FROM 15TH NOVEMBER TO 20TH DECEMBER 1850.

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
Thull, or Sandy Desert.	Political Agent at Bhooj.	Tatta to Buddeena....	..	..	65	5	.....	.....	.....	This route was made six miles longer when marched by Captain Forster's troop of horse artillery, in December 1850, viz. a détour of 3*m.* between Kuddun and Raoma-ka-Bazar, in order to avoid crossing some sandhills, and 3*m.* between Raoma-ka-Bazar and Vingur, to avoid mud, caused by recent rain.
		Vingur.....	..	..	53	4				

Political Agent at Bhooj.

Near Mulkar	14	6	14	6	Excellent level road, along the edge of the Runn, over bunnee or grass land, and a dry, hard, muddy soil.	4 small kucha wells, 20 feet deep, slightly brackish, insufficient for the men of the troop; horses watered from one large well at Indree, 2*m.* NW. from camp.	Forage & firewood good and abundant.	10 houses, on a sandhill, N. by E., 1*m.* from camp, which is on the edge of the Runn, in bunnee or grass land; 4 sandhills to be crossed to Indree, where there is one good kucha well, with much water. The whole of this march over a strip of grass land, with sandhills to the left, and wet Runn to the right. Marched in 4½ hours.
Near Vingee.....	16	0	16	0	Ditto ditto	Plentiful and good, from 16 kucha wells, 15 feet deep, near the hamlet; cross one sandhill to them from the encamping ground.	Ditto	8 huts, and a sandhill, 1*m.* NNE. from encamping ground, which is good, on grass land, outside the sandhills. At 8*m.* 4*f.* pass Panailee, on a sandhill, about a mile from the Runn, with a few huts and kucha wells, but not so abundant as at Vingee. This march is over grass land. Marched in 4½ hours.
Boharee	17	6	17	6	Ditto ditto for 8*m.*, then over muddy Runn; for 4*m.* full of quicksands, close to the sandhills; remainder good.	Abundant and good, from 30 wells, 8 feet deep, and from 3 to 6 feet in diameter.	Jowaree and hurriala grass abundant.	11 huts, on a high sandhill, at the head of an inlet of the Runn. At 13*m.* the road turns off from nearly east to nearly north, up an inlet of the Runn; good encamping ground east, surrounded by high sandhills, close to the wells, 1*m.* north of hamlet; marched in 5 hours and 5 minutes.
Bawurla	11	2	11	2	Level road, the first half tolerable, the last very good, on the edge of the Runn.	Abundant and good, from 16 wells, 10 and 12 feet deep.	Plenty of good hurriala grass and kurbee.	10 huts, on a low sandhill; encamping ground high and good, but sandy, among low sandhills. On leaving Boharee, the road runs SE. for about 5*m.*, over grass and jungle land, to the edge of the Runn, and thence ENE. to Bawurla. The distance between Vingee and Bawurla, 29*m.*, may be shortened into one march of 22*m.* *if the Runn is dry*, by avoiding Boharee, which is at the head of an inlet of swampy Runn, running about 4*m.* inland. Marched in 3 hours and 45 minutes.
Urnialla	21	0	21	0	Level, but muddy, along the edge of the Runn, owing to very recent rain; several quicksands.	Good, from 14 wells, 25 to 30 ft. deep, 3 and 4 ft. in diameter; the wells were emptied by the troop, but soon filled again.	No supplies; grass obtainable by grass-cutters, and camel forage abundant.	No village; ground bad and confined, among sandhills. The road for a mile leads among but not over sandhills; it then skirts the edge of the Runn, crossing the mouths of three narrow inlets of Runn at 5*m.* 7*f.*, 11*m.* 6*f.*, and 20*m.* 1*f.* Marched in 6½ hours.
Carried over..	..	..	199	7				

Division or Description of Territory.	Nearest Civil Authority.	Names of Places.	Distance. Miles.	Distance. Furlongs.	Stages. Miles.	Stages. Furlongs.	Road and Soil.	Water.	Supplies.	Remarks.
		Brought over..	..	..	199	7				
Nuggur Parkur.	Political Agent at Bhooj.	Nuggur	16	7	16	7	Tolerably good road; six miles, chiefly over hard Runn, then over the rocky and gravelly soil of Parkur; easy for carts, but confined by short, thick jungle; the first mile of Runn heavy, owing to heavy rain the day before.	7 built wells; water 60 feet from the surface, good & abundant; also several kucha wells, about 20 feet deep.	Moderate, fr. 25 shops; forage good, procurable by grass cutters; dry forage poor.	250 houses, under a rocky hill; encamping ground NE. of the town. Cross three sandhills in the first 1¼*m.* from Urnialla, hard, and not difficult for guns; from 2*m.* 6*f.* to 6*m.* cross the mouth of an inlet of Runn, somewhat muddy, owing to recent rain. At 6*m.* enter the district of Parkur; pass two shallow tanks to Kharoda, at 8*m.* 3*f.*, 30 houses, 1 well of brackish water. At 10*m.* 4*f.* Drey, 30 houses, 10 kucha wells, 15 feet deep. At 12*m.* 6*f.* Mhow, 5 huts. At 13*m.* 4*f.* Bhodeysir, 60 houses, 5 shops, a large tank, dry in December, under a rocky hill. At 15*m.* Poorunwow, a well, 30 feet deep, water good. Marched in 5 hours.
		Ramsirra Tank	16	1	16	1	Rather sandy, in parts narrow, and through ploughed fields.	A large tank, with pits in it.	None	A tank, one mile to the west of the village of Burrana.
		Deesa	..	..	90	3				
		Total..	..	..	323	2				

NOTE.—This route was first marched (from Deesa to Kurachee, by Tatta) by the 1st Troop Horse Brigade, under Captain Forster, between 15th November and 20th December 1850, and is in every respect the best for troops of all arms during the dry weather between Deesa and Kurachee by Tatta, or Deesa and Hyderabad by Buddeena, and Mahomed Khan-ka-Tanda, as it entirely avoids the sandhills of the desert; and water sufficient for a wing of a regiment of infantry or squadron of cavalry may be reckoned on at all times, by taking the precaution of clearing out the wells, and constructing troughs at the halting-places beforehand. The march appears longer in this route by 12*m.* or 15*m.* than it need be when the Runn is quite dry, since, in order to avoid mud caused by recent rain, the sinuosities of the shores of the Runn were generally closely followed, in lieu of marching in a direct line from one halting ground to another; and 7*m.* may generally be saved, as noted, between Vingee and Bawurla. Captain Forster states, that although the wells at some of the places become dry, they soon fill again, that plenty of camel forage was met with, and that he may say he met with no difficulties whatever, the quicksands being the only points to be guarded against.

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